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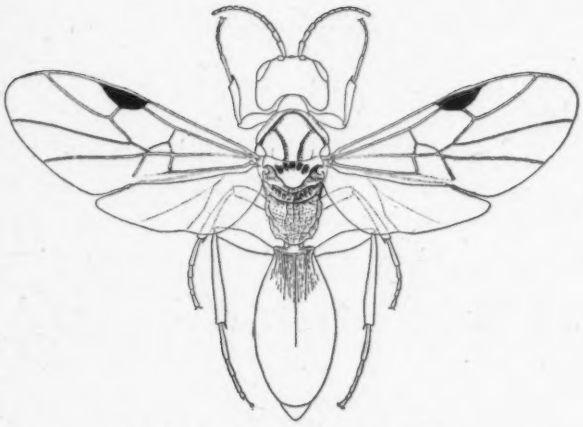

Vanhornia eucnemidarum Crawford.

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Offerata, rare species of North American Coleoptera. *Lack full set.

The Snow Collections, University of Kansas, Lawrence

HENRY ULKE.

ENTOMOLOGICAL NEWS

AND

PROCEEDINGS OF THE ENTOMOLOGICAL SECTION

ACADEMY OF NATURAL SCIENCES, PHILADELPHIA.

VOL. XXI. MARCH, 1910. NO. 3.

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HENRY ULKE.

(Plate VI)

Henry Ulke died at 8 o'clock, February 18th, in Emergency Hospital, at Washington, D. C., of concussion of the brain, due to a fall at his home, 411 Fifteenth street northwest, last Saturday.

Mr. Ulke was born in Frankelstein, Germany, 89 years ago. His father was a prominent naturalist.

In 1849, with his father, he came to this country. The father soon returned to Germany, and young Ulke came to Washington, where his talent as an artist soon gained recognition.

At the time of the accident that caused his death Mr. Ulke was, considering his advanced age, in excellent health. Saturday he fell and struck the side of his head against a door. He was found by his son in an unconscious condition, and was taken to the hospital, where he died without regaining consciousness.

Mr. Ulke belonged to the first generation of American Coleopterists, having been a charter member of the Entomological Society of Philadelphia and was intimate with the men

of that day, such as Leconte, Horn, Ridings, Bland, Cresson, Wlenzel, Wilt and Feldman. He was a noted collector, particularly of the smaller Coleoptera, such as the Pselaphidae, Scydmaenidae and Silphidae, and also a master in technic. His collection and material were frequently used by the systematists of the time. Many references to it will be found in the writings of Cresson, Leconte and Horn, as well as in those of Dietz and others. Many rare and interesting specimens were presented by him to the collection of the American Entomological Society, the first lot being donated in 1861. He was the owner of a famous collection of Coleoptera, the work of a lifetime. It is now in the Carnegie Museum in Pittsburgh, Pa. He had a large circle of scientific friends and was admired and respected by all.

Perhaps no portrait painter in this country was better known in the last generation that Henry Ulke. He was a personal friend of Abraham Lincoln, portraits of many of whose cabinet members he painted.

One of Mr. Ulke's most famous portraits that of President Grant, until the building of the new executive offices last summer, hung in the private office of the President. It now hangs with the White House collection, in the long gallery.

Mr. Ulke painted more than 100 portraits, notable among them being those of Secretaries Sumner, Chase and Stanton, of Lincoln's cabinet; James G. Blaine, John G. Carlisle, Carl Schurz, John Sherman, Chief Justice Taney, of the Supreme Court; Robert Ingersoll, and W. W. Corcoran, founder of the art gallery that bears his name.

He is survived by three sons.

THE First International Entomological Congress to be held in Brussels from the 1st to the 6th of August is sure to be a success. Delegates from Canada and the United States have signified their intention to be present. Seven subscriptions have been received from Africa and seven more are expected. India, Japan and the British West Indies will be represented. The Entomological Society of America will appoint delegates, and it is hoped that other American Entomological Societies will do the same.

The Life History of Cricula trifenestra.

By James H. Stebbins, Jr., Ph.D.

Through the courtesy of Dr. G. Lagai of The Kny-Scheerer Co. I came into possession, on April 10, 1909, of a dozen live cocoons of *Cricula trifenestra* which he had shortly before received from India.

The cocoons were firmly spun of silk, and were of a bright yellow color. In size they were 35-40 mm. long by 14-16 mm. wide.

The first moth to emerge from its cocoon was a male, and it made its appearance on the night of June 6, 1909, and the remaining moths emerged thereafter on the following nights: June 7, a male and a female; June 8, a female; June 9, two females; June 11, a female; June 25, a male; June 27, a female; June 28, a male. Two cocoons did not develop at all, and among those which did develop four were males and six females.

On June 23d a male and female were found in copulation, and on June 25th the female began ovipositing. The ova were small, white and spherical. There were only 40-50 of them, and they were deposited in small scattering clusters.

July 8, 1909. The ova laid on the 25th inst. began to hatch out, thus making the egg period 14 days.

The larvae obtained were about ¼ inch long. The head was large and black, with a slender body gradually tapering towards the anus. The color of the body was brownish-yellow, with a blackish collar on the thoracic segment. There were four tubercles on each segment, surmounted by dark colored setae, and a dark spot on the eleventh segment and anal shield. The legs were black, and the props greenish-yellow, while the anal shield is dark colored.

Not knowing the food plant of this larva, several were tried, among which I would mention lilac, lettuce, wild cherry, hickory, maple and oak leaves, but they refused everything excepting the oak leaves, which they devoured with great relish. They all feed in a row, quite close together, forming quite a sociable

family and starting at the outer edge of the leaves they gradually eat inward toward the midrib.

July 16, 1909. Eight days after hatching the larvae have moulted for the first time. They are now about half an inch long and quite slender, and of a dark velvety-brown color, with four tubercles surmounted with whitish hairs on each segment. The props are of the same color as the back. The legs are whitish, and the anal shield dark brown. They devoured all their skins excepting the heads.

At this stage of the larva's development it was discovered that if the larva's setae accidentally come in contact with the tender portion of the skin, that a pronounced stinging sensation is felt, followed by a slight reddening of the same.

July 24, 1909. On the sixteenth day the larvae have moulted for the second time. They now appear about the same as before, but are considerably longer. Their heads are now brownish-red instead of black, and each segment has become covered with minute yellow dots. They again ate most of their skins.

July 31, 1909. On the 23d day the larvae have moulted for the third time. They are now over an inch long, but still quite slender. Their heads are now red, their bodies black, with numerous bright yellow spots, and there are now 6 tubercles on each segment surmounted with white setae, thus giving them a red and black banded appearance. The props, legs, abdomen and anal shield are brownish-red.

August 7, 1909. On the thirtieth day the larvae have stopped eating, and have begun moulting for the fourth time. They are now about 2 inches long and quite slender, but show no other marked change.

August 14, 1909. Thirty-seven days after hatching the larvae are now moulting for the fifth time. They are now about 3 inches long and much thicker, but otherwise their appearance has changed very little.

August 20, 1909. After a couple days' abstinence from food the larvae have begun spinning their cocoons. These are smaller than the original ones, and not nearly as heavily or compactly built.

September 12, 1909. Two male moths emerged from their cocoons. They are much smaller, and of a somewhat different color than the originals. The male with wings extended, measures 50-52 mm. from apex to apex of the primaries, and the length of body is 17-20 mm.

The line markings are less pronounced, but the translucent spots are well defined, but smaller than in the originals.

The larvae are quite hardy, and though our summer at Clayton, N. Y., was a cold one, and the variations in temperature at times considerable, but very few were lost.

September 12-14, 1909. A number of males and females emerged from their cocoons, and on the 14th a male and female were found in copulation.

September 15, 1909. The female fertilized on the 14th inst. deposited sixty eggs, and on September 30, 1909, fifteen days later these eggs hatched out.

The young larvae were very small, but had the same general characteristics as the previous brood. It will thus be seen that *Cricula trifenestra* is double-brooded in these latitudes.

Owing to my return to New York just at this time, I was unable to follow up the development of the second brood of larvae for lack of the necessary food-plant, but hope to renew my investigations upon this subject during the summer of 1910.*

THREE NEW RECORDS OF BLATTIDAE (ORTHOPTERA) FOR THE UNITED STATES, by James A. G. Rehn and Morgan Hebard.—*Ceratinoptera diaphana* (Fabricius). An adult female of this species, in the Hebard Collection, was taken from under a coquina boulder in heavy scrub in Key West, Florida, January 20, 1904, by the junior author. The species has been recorded from Cuba and a number of the other Greater and Lesser Antilles south as far as Barbados. *Phoetalia laevigata* (Palisot). A female of this West Indian species from Key Largo, Florida, taken March, 1898 by C. L. Pollard, is in the collection of the United States National Museum. *Blaberus cubensis* Saussure. A male of this species taken at Key West, Florida is in the collection of the Academy of Natural Sciences.

*Just after concluding this article, my attention was called to another one relating to this subject, entitled "The Breeding of the *Cricula* Larvae," by J. English, Entomologische Zeitschrift, Sept. 25, 1909, p. 120, but as the results obtained by me differ somewhat from those obtained by English, I feel justified in giving my observations publicity.

Further Study of the Catocalae.

By R. R. Rowley and L. Berry.

In the late summer and fall of 1908, the senior author received from various European sources, eggs of *Catocala sponsa, dilecta, fulminea, fraxini, electa, pacta, puerpera,* and *elocata,* and remembering the experiences of the previous spring, kept the eggs on a cold cement floor till the foliage of the food plants had burst the bud coverings and was ready to supply larvae with abundant food.

The first egg to hatch was of *pacta,* April 27th. *Sponsa* was next on May 2d, then *fulminea* on May 5th, *fraxini* on the 6th, *nupta* on the 8th, *electa* on the 13th, on the same day *dilecta,* and lastly *puerpera* and *elocata* on the 23d.

The growth of these larvae was very satisfactory except in the last two, the author scoring a signal failure on these as far as securing chrysalids was concerned, still there was some satisfaction in the fact that the larvae lived almost to maturity.

There was a worse disappointment in the *dilecta* which readily matured and pupated and then perished without giving a single imago.

Especially gratifying were the beautiful series of *sponsa, fulminea, fraxini, electa* and *pacta* moths. *Pacta, fulminea,* and *fraxini* seemed to be unusually hardy as caterpillars and were a source of much interest to the author.

The imago of *pacta* is a beautiful little creature with pink hind wings and pink abdomen, while the larva of *fulminea* is a strange departure from the typical "Cato-worm", in the possession of long dorsal tubercles.

The caterpillar of *puerpera* is almost white and it was not a matter of much surprise to learn that the front wings of the moth are very light. The first imagoes of *fulminea* were on June 21st and the first *pacta* on the 22d. The first *sponsa* on the 24th.

However, it is the intention of the authors, in this article, to record their observations on such American species of Catocala as they were fortunate enough to have the opportunity to study during the spring and summer of 1909.

The eggs of *cerogama, relicta, palaeogama, ilia,* and *cara* were obtained by the junior author from moths captured the summer before, in the neighborhood of Vinton, Iowa, while double lots of eggs of *amatrix* and *concumbens* were furnished by both the junior author and Mr. C. Leonhard, Kearny, N. J.

The first eggs to hatch were those of *ilia* on May 2d, and, despite the fact, the senior author kept the jars well filled with fresh young leaves of both bur oak and chestnut oak, few of the larvae reached the first moult. To all appearances they traveled themselves to death and, with the exception of the caterpillars of *relicta,* were the most active *Catocala* larvae the author ever handled. The larvae of most Catocalae are very active just after hatching, but those of *relicta* lose none of their activity till well grown.

The junior author had better success with *ilia* and secured several chrysalids from larvae fed on bur oak and, on June 4th, she found well grown larvae of this species lying in the grooves of the trunks of bur oak trees, partly concealed by the shaggy outer bark. Without concealment, these caterpillars would probably be conspicuous in their light color, at maturity. Larva rests with head upward.

It seems that the oak-feeding larvae, as a rule, are much more difficult to rear than larvae feeding on other plants, unless it be the walnut caterpillars. Of course, *Catocala* larvae only are meant. About half of the willow and poplar feeders are easy to bring to maturity, all of the locust and most of the hickory "worms." At least, this is the experience of the senior author.

On the 4th of May the first *cerogama* egg hatched and the little caterpillar was light smoky yellow with a black head. Later, but before moulting, the body of the larva became quite dark brown with black pro- and true legs.

After first moult, but near the second, the caterpillar is light brown, striped longitudinally with white. The head, gray with black dots and marks while on the top of the last two abdominal segments are distinct black points or granules. True legs dark, tipped with black. Pro-legs, flesh color. Between moults in this larva the time is from four to five days.

After the second moult the larva is short, thick, and much

unlike a *Catocala* "worm", yellow, striped with longitudinal lines of a dark brown color. Head brown with lighter streaks. The dorsal portion of the first thoracic segments bright yellow and without the stripes. The tubercles on the top of the first thoracic segment and the last two abdominal segments, black, True legs black, pro-legs, yellow with black tubercles. A strange looking *Catocala* larva.

The young *cerogama* larvae have the habit of hiding in the leaf buds and the older ones down in the foliage.

After the third moult the larva is yellowish with longitudinal black parallel lines. The top of the first thoracic segment has a yellow collar-like surface with black dots or points. The pro-legs, color of the body. True legs with black tips and dark outside. The pair of tubercles over the eighth abdominal segment, short, black horns. The top of the caudal shield yellow with back dots as with the first thoracic segment but not so distinct. A very sluggish larva.

After the fourth moult the color is unchanged. Head, mottled yellow, brown and white and much larger than just before the moult, without any black dashes. True legs, shiny black. The two dorsal tubercles over the eighth abdominal segment, black pointed, prominent, horn-like. The larva still has the bright yellow collar with black dots over the first thoracic segment. The ventral surface is a light green with small, not very dark, mid-ventral spots.

The grown larva of *cerogama* is fully two inches long, thick, dark purplish brown with interrupted longitudinal lines of black, very fine. A pair of short tubercular dark brown spines on the top of the last spiracular segment (8th abdominal). The yellow collar and yellow caudal shield, with black dots or low tubercles. Head mottled, white, yellow and black (black streaks). True legs black on the outside. Pro-legs, body color. Ventral surface, yellow-green (light) with an almost entire absence of the mid-ventral spots. The caterpillar is very tame and lazy. The spiracles of the grown larva of *cerogama* are very noticeable, being rather large, black and surrounded by a yellow ring. (The mid-ventral spots, when present are light brown).

After spinning and before pupation the larvae are quite green along the side and greenish all over.

The caterpillars began spinning on May 31st and the last one was not ready till June 6th. The chrysalis of *cerogama* is from one to one and one-fourth inches long, brown. Light reddish-brown over the abdomen.

Pupa covered by a slight prunescence. The larvae spun both in paper in the bottom of the jar and in the folds of leaves. When first freed of the larval skin the chrysalis is a beautiful light green.

But few of the larvae died, two of the pupae, however, failed to give imagoes. The food plant is linden or basswood. The first imago appeared on the 6th of June, having spent a month in the chrysalis state. The last pupa gave an imago on the 13th.

The first *innubens* egg hatched on May 7th and the larva passed its moults on the 12th, 17th, 22d, and 27th, and began spinning on June 1st.

Before the first moult, the larva is light gray, streaked longitudinally with a darker color. Head, light. True and pro-legs gray. No hump, larva very small. After second moult, the caterpillar is very light gray, almost white. Head, legs and pro-legs, white or gray. The tubercles show up as dark points. After the third moult the larva differs little from the full grown larva, is light gray or almost white with a slight hump over the fifth abdominal segment. The lateral body stripe darker than the dorsum. Black dots or small tubercles show distinctly over the dorsal white. Head, gray, streaked with delicate black lines. After the fourth moult the dorsal gray has an under shading of light brown while the lateral stripe is a beautiful red-brown. The hump over the 5th abdominal segment is rather strong. Tubercles small, black. Head, light reddish-brown. True legs light brown. Pro-legs gray with reddish-brown dots. When well grown the larva is almost white, dorsally, with a lateral yellowish or orange stripe. Black dots and interrupted lines are in the dorsal stripe. Over the 5th abdominal segment is a slight hump with dark patches about it. The top of the first thoracic segment is orange. True legs, orange. Pro-legs, yel-

low. The ventral surface is cream-yellow with large black spots. Head, light yellow with fine longitudial lines, gray or black. The larvae of *innubens* are the hardiest of the hardy, and while there were no deaths in the brood, there wasn't a *scintillans* among the imagoes. The chrysalids gave moths from June 27th to July 1st.

Individuals of this species are the most abundant *Catocala* moths in the forests of Pike County, Missouri. The food plant of the larva is honey locust.

The larvae of *palaeogama* began hatching on the 15th of May and were dark blue or dove color with white legs, white pro-legs and white ventral surface. The head not quite as dark as the body color. Longitudinal lines hardly discernible. After the first moult these larvae are black with indistinct longitudinal lighter lines. Head black. Both true and pro-legs light, almost white. Little or no change in these larvae after the first and second moults save an increase in size and a little lightening of the ground color. After the third moult, general color bluish-gray with black head, lined with fine white marks, dark thoracic segments, dark dorsal patch on both 5th and 6th abdominal segments and dark sides to the 8th and 9th segments and dark 10th segment. The 3d and 4th pro-legs black, the 1st and 2d, gray. True legs dark brown. Tubercles black. A slight hump over the 5th abdominal segment. After the fourth moult, the larva entirely loses its bluish color and becomes dark gray with the three thoracic segments, a cross band between the 5th and 6th abdominal segments and the 8th, 9th, and 10th abdominal segments black. Head gray, streaked with dark brown. True legs, dirty yellow. Pro-legs, of the general body color. A slight cross ridge over the 5th abdominal segment and prominent black tubercles over the 8th abdominal segment. Tubercles black. In a few hours after the moult they resume their bluish-white color. After the fifth (?) moult, the *palaeogama* larva is light red-brown over the abdominal region to the 5th segment, where a cross black band covers half of the 5th and half of the 6th segments. The thoracic segments, as well as the 8th, 9th, and 10th abdominal segments, are dark brown,

quite black. The head, true and pro-legs are flesh color. Head large and round and without a lateral black dash. No hump. The tubercles are whitish and yellowish and very prominent, the dorsal pair over the 8th abdominal segment being the strongest and somewhat brown in color. Stiff bristles but no lateral row of setae. The eggs from which the above larvae were obtained were found by the junior author in a crowded cluster under the loose outer bark of shag bark hickory, but the larvae were fed to pupation on pecan and were quite free from disease. The caterpillars began spinning on June 15th to 24th.

The chyrsalis is one and a fourth inches long, light brown, wing cases lighter than the rest of the body. The whole pupa covered by a slight prunescence. The larvae spun either at the bottom of the jar between folds of paper or above, between leaves. The chyrsalids began to give imagoes on July 10th and continued to the 14th. Among the imagoes were two *phalanga* and one or two very dark forms, on the hind wings of which the yellow cross band was almost eliminated. The junior author fed a brood through on walnut and pignut hickory.

The first larva of *Catocala relicta* hatched on the 13th of May and was green with a light chestnut head. True and pro-legs light. Caterpillar very small and exceedingly active. The hatching from this first batch of eggs continued for a number of days. The mother of the brood was a light moth. The first egg from a dark female hatched on the 19th of May and others hatched, one or two a day, for some time. After the first moult, the larva was pale yellow or chestnut with a head a little deeper in color. The legs colored as the body. After second moult, the caterpillar is gray, longitudinally streaked and with very light chestnut colored head. True and pro-legs slightly browner than the body color. No hump.

After third moult, the larva is an inch long, grayish brown with a small flat head like that of the *Cara* larva, lobed above and yellowish at the lobes. Behind the yellow tips or lobes, the head is black. There is a small cross hump over the 5th abdominal segment, quite black, and set in a large, dark, dorsal spot. The true and pro-legs, body color. Over the 8th ab-

dominal segment is a slight ridge like elevation with a black line behind it. The top of the 1st thoracic segment is dark. A row of stout setae are along each side. Body dots minute, dark.

After fourth moult, the larva is yellowish gray with black or dark brown head, less flattened than at third moult, with bright yellow lunules at the upper lobes. The top of the 1st thoracic and 2d abdominal segments darker than the body color. A cross band of dark brown, almost black, envelops the hump over the 5th abdominal segment and a cross streak of black behind the double dorsal tubercle over the 8th abdominal segment. True legs, reddish gray. Pro-legs, body color. Tubercles not noticeable. At this stage the larva is much like that of *Catocala fraxini*. There is a lateral fringe or row of short setae. Later, probably after the fifth moult, or rather, at the fifth moult, is one and a half inches long, whitish yellow. Head black, large and much as in *C. fraxini* with yellow-white lunules at the lobes above. True and pro-legs, body color. A slight hump over the 5th segment, with a small yellow-brown spot on top, enveloped in a cross band of dark, a black line crossing the 8th abdominal segment as a shade line behind the two dorsal tubercles which are not strong.

The rest of the body tubercles cream color and inconspicuous. A dark shade line crosses the front of the 2d abdominal segments, a dimmer one at the front of the 3d abdominal segment. Two small dark spots are on the top of the 7th abdominal segment. The front of the head, that is about the mouth, is grayer than above. Tubercles darker than the body color. Row of short lateral setae. Full grown larvae two and one-fourth inches long and the first began to spin on the 22d of June.

The full grown larva is greenish gray with an indistinct double V of dark dots on the tops of the 1st and 2d abdominal segments and a slight dark patch of dots on the side of the 1st thoracic segment. A cross band of black, invaded by the body color, mid-dorsal and laterally, crosses the back of the 5th and front of the 6th abdominal segments, extending onto the third pro-leg. A slight mid-dorsal cross black line on the 7th ab-

dominal segment and a stronger one on the 8th, forming a blunt V. Black lines bound the anal pro-legs. The true legs are flesh color with green at the joints. Pro-legs, body color. Head, black above, except at the lobes, where a dirty reddish yellow lunule is conspicuous. About the mouth, the color is lighter, flesh color and appears in dots and streaks. The ventral surface is pale green with black spots.

This larva from the time of hatching to the time of spinning is the most active I have ever had anything to do with, but is apparently without fear, as it seems to prefer to crawl on one's fingers. You can't leave one for a minute and expect to find it again. It is strongly like the larva of *C. fraxini,* differing only in minor details. In spinning, it seems to prefer the top or middle of the jar and the willow leaves, to paper. It seems to be hardy on black willow, except that it does not reach the size of the aspen feeder.

On the 25th of June ants destroyed seven grown larvae of this species, all the "worms" in one jar. The pupa of *C. relicta* is rather long and slender, dark, reddish brown with whitish prunescence. Wing cases not darker than the body. The chrysalis when disturbed is quite a wriggler, like the larva. The first imago was a white one and on July 20th and the last one was a dark one and on August 5th. The imagoes straggled like the larvae. From the eggs of the white female all the moths, save one, were white, and from the eggs of the dark female most of the moths were dark. There was no difference in the size or color of the larvae of the two varieties.

The junior author had larvae quite three inches long, fed on aspen, but no luck in securing imagoes as her larvae died when full grown. She finds the imagoes in the woods among the largest of *Catocala,* but bred on black willow by the senior author, they were no larger than *concumbens.* By striking a smart blow on the tree just over a resting *relicta* moth the junior author was surprised, on several occasions, to see the moth drop to the ground and remain motionless, even allowing itself to be picked up.

On the 24th of May the first larvae of *concumbens* hatched.

They were at first greenish, getting darker, with a light chestnut head, as in young *C. relicta* larvae. True and pro-legs concolorous with the body. After the first moult, the larva is almost black with fine longitudinal whitish lines, the dorsum being a little lighter than the sides. Head dark brown. True legs brown. Pro-legs black. A white dorsal streak just back of the head and another one on the top of the last three or four body segments. After the second moult the caterpillar has a yellowish brown dorsum and a dark lateral stripe. Body marked longitudinally. Head dark, flattened as in *cara*, lobed above and streaked. Yellowish lunules at the lobes with dark dot in the crescent. Body and head streaked longitudinally but indistinctly. True legs lighter than the lateral stripe. Pro-legs dark with dark yellow. A cross black ridge over the 5th abdominal segment. The ridge over the 8th abdominal segment not distinct. Ventral side cream color with intensely black spots.

After the third moult, the larva is one and one-half inches long, light yellowish brown with a reddish yellow cross band, inclosing the orange hump over the 5th abdominal segment. Hump with a dark line encircling the base. Black dashes at the pair of dorsal tubercles over the 8th abdominal segment. Pro-legs body color with yellow central surface. True legs, red-brown. Head, gray with brownish lateral dash and reddish-yellow spots at the lobes above, and flattened as in *cara*. Tubercles reddish. Larva very much like that of *cara*. Whitish beneath and with black round spots. Short lateral fringe. At this stage of its life, the larva of *concumbens* is hardly distinguishable from that of *amatrix* at the same stage.

After the fourth moult, the larva is less than two inches long, dark yellowish-brown about the middle and dark brown about the anterior and posterior ends. The tubercles are deep red-brown with yellowish tops. Head flat as in *cara*, colored like the body, with red lunules at the lobes above and shaded on the outside by black dashes that extend from the mouth entirely around above. True legs, flesh red. Pro-legs, body color with indistinct light spot outside. Over the 5th abdominal segment is a cross elliptical raised yellow place or hump surround-

ed by or flanked behind by, rather, a cross band of deep yellow. Ventral side reddish with the central black spots (almost pinkish below). The tubercles over the 8th abdominal segment rather strong, flanked behind by a strong cross line of black. The lateral setae very short, almost absent. After the fifth (?) moult, the larva of *concumbens* has the same colors and marks as after the fourth moult, except that the body color is a shade lighter. Length from two to two and a fourth inches.

On the 23d of June, ants killed the last jar of *concumbens* larvae. Grown larvae of *concumbens* received from the junior author were from two and a half to three inches long, brown with faint reddish tinge. Tubercles deep red-brown. A cross band of light red-brown over the back half of the 5th abdominal segment. The cross elliptical hump over the 5th abdominal segment is hardly noticeable, reddish yellow with a darker basal girdle. The two dorsal tubercles on the 8th abdominal segment scarcely stronger than the rest but with a cross line of black for a back boundary. True legs reddish yellow. Prolegs, body color. Head, body color, flattened as in *cara* with a lateral boundary line of black from the mouth around to the mouth, not broken above. The horn-like lobes of the head above orange yellow. Ventral side of the body, beautiful pink with black central spots. Bristles not long. Lateral fringe of short setae. The junior author had better luck with her larvae of *concumbens,* securing pupae and imagoes, feeding her larvae on broad leaf willow while the senior author fed his brood on black willow. Four chrysalids of *concumbens* sent by mail from Vinton, Iowa, to Louisiana, Mo., produced as many beautiful imagoes while chrysalids of *amatrix, relicta,* and *piatrix* either perished on the road or died later, but the weather was intensely warm when these pupae started through the mails. Among a number of pupae of *neogama,* sent under similar circumstances, three produced moths.

On the 25th day of May the eggs of *amatrix* began to hatch. The young larva is light brown with lighter longitudinal streaks. Head, chestnut or light brown. True and pro-legs, colored as the body. Much darker than most other willow feeders at this stage, that is, before first moult.

The *amatrix* eggs from a *nurus* female began hatching on the 1st of June. After first moult, the larva changes from a light chestnut color to almost black with a mid-dorsal cream colored stripe from the head half the length of the body. Head, dark brown. True legs, dark brown. Pro-legs, black. After second moult, the caterpillar is reddish brown with a somewhat lighter mid-dorsal line from the head to the middle of the body length. There is a very black lateral longitudinal band. Head darker brown than the body. The lateral black band crosses over the body at the 5th abdominal segment in a slight hump. The pro-legs, black. The true legs dark brown. At this stage of its growth it is a very pretty larva.

The larva of *nurus* is light yellowish brown before first moult. After first moult, it is almost black with head a little lighter. Pro-legs, black. True legs, dark, almost black. Longitudinal streaks absent or indistinct.

After third moult, the larva of *amatrix* is nearly two inches long, yellow brown, with a yellow elliptical cross ridge or hump over the 5th abdominal segment and a cross brownish band inclosing the hump. Tubercles reddish yellow. A dark shade line behind the tubercles on the 8th abdominal segment. Head, brownish gray and flat as in *cara*, with red-brown lobes above. True legs, red brown. Pro-legs, body color. Larva very much like that of *cara*.

After the fourth moult, the larva is over two inches long, dark brown with a faint reddish tint and with reddish tubercles. Flesh colored legs and with pro-legs of body color.

The cross elliptical hump over the 5th abdominal segment is about half as large as that in *concumbens* of the same length, yellow in a dark red-brown cross band, rather, the cross band is behind the hump. The dorsal tubercles over the 8th abdominal segment rather strong red and with a black cross shade line behind. Lateral fringe short. Head flat with reddish border, bounded behind by a black line or dash that goes all the way around from one side of the mouth to the other. Ventral side of the body deep red with the black spots. The description at this stage is much like that of *concumbens* at the same stage.

By June 21st the *amatrix* and *concumbens* larvae were dying fast and not a single one of the larvae of either, handled by the senior author ever pupated. The eggs of *relicta, amatrix,* and *concumbens* hatched slowly, a few a day for weeks, it seemed, and the larvae were just as slow to develop. All three of these were fed on black willow.

Another larva of *amatrix* after fourth moult, was gray with a faint reddish tint. Tubercles, red. True legs, flesh color, also pro-legs. Head flat as in *cara* and with strong black dashes from mouth to lobe above but not across the top. Head, gray in front with pale reddish lobes above. A brownish band crosses the 5th abdominal segment. The hump is small and pinkish but not including the lateral tubercles, in fact, the hump is scarcely larger than a tubercle. Short lateral fringe. Ventral surface paler at front than above and with strong black spots in brownish yellow. A handsome larva.

A peculiarly banded larva of *amatrix* found by the junior author on the 16th of July on blue willow was two and a half inches long, very light gray with four lateral, rather narrow longitudinal dark, almost black bands, two to the side, the light gray appearing as broader bands. Head concolorous with the body and with a strong lateral black dash. Head, as in *cara,* but with small gray spots or low tubercles at the upper lobes. Body dots dark. Tubercles, white. The hump over the 5th abdominal segment not otherwise than the body color. The strong tubercles over the 8th abdominal segment, dark gray. True legs and pro-legs, light gray as body. On the back half of each body segment, the dark bands become black. Ventral side of the body pinkish with black central spots. By comparing this description with the one of the grown larva of *Amatrix* in our last year's article, a great difference in color will be found. Two of these striped larvae were found by the junior author, but the one sent to the senior author had succumbed to six fat, parasitic dipterous larvae, larger than the full grown maggots of the common house fly. The other larva gave the junior author a chrysalis and an *amatrix* moth in due time. We had hoped it might be something else. After all, there is much variation in the larva of this species. It is somewhat

strange that the larvae of *amatrix, cara, parta, concumbens, piatrix,* and *neogama* are so peculiarly subject to a deadly dysentery, so much so that in ordinary years it is almost impossible to secure imagoes from larvae fed in breeding jars, and it is almost certain that the larvae in nature fare little better, at least here in Missouri, considering the scarcity of the imagoes and knowing that each female lays from 500 to 900 eggs.

The junior author had better success with her larvae of *concumbens, amatrix* and *parta,* securing imagoes from all three.

On the 3d of September, the senior author saw in the woods a magnificent specimen of *nurus* fully four inches expanse and the following day captured a battered specimen, the first he ever took on the wing.

On the 9th of May, the senior author collected from honey locust sprouts, twenty-five larvae of *Catocala illecta,* eight of them being past fourth moult. At the same time, a single larva of *C. innubus,* past second moult, was found. The first of these *illecta* pupated on the 21st and 23d of May and gave the first imago on the 9th of June. The first warm days of April hatch the *illecta* eggs and the little caterpillars struggle through biting frosts and even severe freezes but they escape many of the parasitic foes and diseases that come with warm weather.

Catocala minuta. Larvae of this little moth were found on honey locust by the junior author. When fully grown, the caterpillar is one and a fourth inches long, very dark, especially about the head and from the 5th abdominal segment back. Head almost black. The dorsal portion of the body lighter than the side. Longitudinal bands of lighter and darker brown. Pro-legs, body color. True legs, red-brown. A hump over the 5th abdominal segment. Dorsal tubercles almost white. The pair over the 8th abdominal segment the strongest and of a red color. Under side with the black spots. The larva reared by the senior author spun between leaves and the pupa was brown with the usual prunescence. The larva pupated on the 13th of June and the chrysalis gave an imago on the 26th. The junior author secured three imagoes from bred pupae. Since 1901 this *Catocala* has been scarce about Louisiana.

Two new Fulgorids (Hemiptera-Homoptera).

By Abram Herbert Manee.

Amyele vernalis n. sp.

Length from tip of head to end of body 14 mm.; head 5 mm., expanse 27 mm.; head brown, prolonged to nearly twice its width at base and tapering from base to outer third where from a slight broadening it tapers to rounded point; upper side of head with carinal edges and two carinae which approach from front run parallel to first third, then separate to outward curve as if to enclose the strong carina of prothorax; under side of head with carinal edges and strong central carina; eyes large, longer than wide; legs brown, hollowed on inside, hind tibiae with five spines; abdomen above black centered broadly with orange tipped with brown, under side brown sprinkled lighter; fore wings brown, veins prominent; hind wings clear, broadly based with pink and tipped with fuscous.

Southern Pines, N. C. Early April. Five specimens, one at National Museum sent by author, one in possession of Dr. E. B. Wilson of Columbia University, one collected by R. S. Woglum and two in possession of author.

Helicoptera pinorum n. sp.

Length 9 mm., expanse 20 mm.; eye round, in diameter ¾ mm., ¾ mm., round-pointed, carinal-edged, a central canal formed by 2 parallel carinae; prothorox with three carinae forming similar aspect to upper and under sides of head; under side of head piceous with broad ivory-white band which includes the *extruded* antennae and suffuses bases of legs; legs brown, hind tibiae with a median spine; body b[illegible] upper part light; fore wings brown, sprinkled lighter, and light spot at apical third of edge, veins prominent; under wings clear with tips smoky.

Southern Pines, N. C. September. Four or five specimens taken by author.

A New Staphylinid (Col.) Genus from Arizona.

By A. Fenyes, Pasadena, Cal.

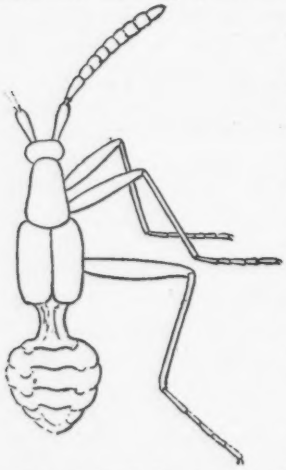
Mr. G. Beyer of New York has sent me lately two specimens (one in fragments) of a very odd-looking beetle, which evidently belongs to a new genus of the subfamily *Aleocharinae* (*Staphylinidae*). Mr. Beyer writes me that he took four specimens in the Rincon Mountains in Arizona (5,000 feet above sea level) in August, 1907; the beetles came to the camp-light with a number of wasps of the same size and color, the two insects being scarcely distinguishable when on wing.

The above two specimens were accompanied by two drawings (made by Mr. I. Mattausch of New York), which will give a good conception of the general outline of this peculiar, almost surely inquilinous beetle.

Following is the description of the new genus, based on the two above specimens.

BEYERIA gen. nov.

Labrum transverse, moderately sinuate at tip. Mandibles apparently simple. Inner lobe of the maxillae on the inner side with comb-like teeth; outer lobe on the inner side and tip with fine and long spine-like hairs. Maxillary palpi 4-jointed; joint 2 short, thick, cup shaped; 3 very long, three times longer than 2, almost cylindrical; 4 subulate, more than half as long as 3. Mentum transverse. Ligula not clearly visible in my specimen, apparently absent. Labial palpi moderate, 3-jointed; joint 1 the thickest, about as long as 3; 2 a little shorter than 1 or 3. Head with the eyes wider than the prothorax, very elongate, much longer than wide, behind the eyes gradually narrowed; above deeply and almost entirely, longitudinally, widely excavated; eyes moderately small, coarsely facetted; tempora much longer than the eyes; genae not at all margined. Prothorax about as long as the head, sides almost parallel, be-



hind a little wider; base and hind angles rounded; sides near the epipleurae longitudinally, deeply impressed, the impression reaching neither apex nor base. Elytra about as long as, and together considerably wider than, the prothorax, together longer than wide; shoulders and outer hind angles rounded. Abdomen strongly pedunculate, the peduncle apparently consisting of the third segment; segments 4-8 forming a short oval, above flattened, below convex mass. Legs and all their parts very long; all the tarsi five jointed. Mesosternal process moderately projecting between the middle coxae, at tip slightly rounded. Metasternal process moderately produced, at tip broadly rounded.

I cannot assign to this genus the proper systematic position in the tribe *Aleocharini; Gastrorhopalus* Sol. and *Ecitophya* Wasm. are, to my knowledge, the only other genera of the tribe having a similar abdomen.

The type species of the genus is—

Beyeria vespa sp. nov.

Slender, elongate, winged; entirely yellowish brown; shining. Antennae elongate, longer than head and prothorax together; scarcely incrassate distally; joint 1 long, thick; 2 short, conical, about one-half as long as 3; 3 elongate; about as long as 1; 4-10 approximate to each other, gradually slightly shorter, from a little longer than wide to a little wider than long; 11 as long as 9 and 10 together, acuminate, with moderate pubescence. Head, smooth, sparsely pubescent. Prothorax, with uneven, shallow and indistinct punctures, sparsely pubescent. Elytra, with sparse, coarse and shallow punctures. Abdomen smooth. Legs, with long and delicate hairs. Length, 3.5 mm.

Rincon Mts. in Arizona.

Type in my collection.

LIBELLULA.

'Round and 'round in a figure-of-eight,
Over the hemlock pool;
Gauzy wings in the sunshine gleam
Where, here and there, a fitful beam
Pierces the shadows cool.

'Round and 'round in a figure-of-eight,
Playfellows blue and green,
Evenly matched in a tireless jig,
A perfect mechanical whirligig,
The liveliest ever seen.

New Bees of the Genus Osmia from California.

By T. D. A. Cockerell.

Osmia gabrielis sp. nov.

♀. Length about 13½ mm., width of the rather long and *nearly parallel-sided abdomen* about 4 mm.; color a fine dark indigo blue, brilliant on the abdomen, suffused with purplish on the face, and with greenish on the anterior part of the mesothorax; *pubesence all black*, except on inner side of anterior tarsi, where it has a coppery tint; in some lights there is an appearance of pale hair here and there, owing to reflection from the surface of the coarse black bristles; head and thorax very densely punctured, the punctures on the mesoththorax conspicuously finer than those on the vertex; head rather large, the cheeks broad; mandibles with the two apical teeth well developed, but the others nearly obsolete; clypeus simple, its lower margin black; antennæ black; tegulæ black; wings fuliginous, broadly more or less hyaline along the veins, especially the outer ones; first r. n. entering, second s. m. nearly twice as far from base as second from apex; legs black, the femora strongly tinged with blue; second abdominal segment purplish basally.

A very distinct and beautiful species, having the general form and appearance of *O. armaticeps* Cresson, but without the cephalic peculiarities of that insect.

Hab.—San Gabriel Mountains, California, alt. 3000 ft., June 16, 1909 (*F. Grinnell, Jr.*). At the same time and place, Mr. Grinnell took *O. quadriceps* Cresson.

Osmia grinnelli sp. nov.

♀. Length about 10 mm., rather robust, with a short abdomen; head and thorax black, with feeble metallic tints, strongest at sides of face, where the greenish contrasts with the black of the clypeus; abdomen dark bluish, the first two segments partly brassy; hair of head and thorax inconspicuous, black mixed with shining white; a tuft of white hair behind the wings, but that on sides of metathorax and on pleura black; hair of abdomen black, even on first segment, but some white hairs forming a little tuft at sides of first segment near hind margin; legs black, with black hair, that on inner side of anterior tarsi copper-red; tegulæ dark; wings hyaline, more or less stained along the nervures, b. n. exactly meeting t. m.; second s. m. low, receiving first r. n. only a little more remote from base than second from apex; antennæ black; mandibles with only the two apical teeth well developed, these far apart; clypeus with very large punctures, smaller and extremely dense toward lower margin, next to which is a median broad shining pit or depression.

A very ordinary looking species, easily known from *O. nigrifrons, wilmattae, pikei,* etc., by the disc of the mesothorax, which has large well separated punctures, with extremely small punctures between them. It is related to *O. leonis* Ckll., but that is larger and has the clypeus much more densely punctured.

Hab.—Strawberry Valley, San Jacinto Mts., California, 6000 feet, July 16 (*F. Grinnell, Jr.*).

Osmia sanctæ-rosæ sp. nov.

♀. Length about 8½ mm., moderately robust, *fine deep indigo blue,* the abdomen brilliant and shining, though not equal to that of *O. cobaltina;* pubescence black, including inner side of front tarsi and tuft behind wings, but a little short glittering white hair on hinder part of disc of thorax, and a quite conspicuous little pale patch on each side of first abdominal segment, along the hind margin; *mandibles evenly tridentate,* the teeth all strong; clypeus normal, two little tufts of orange hair beneath lower edge; punctures of head and thorax small and very dense; antennæ black; *tegulæ shining blue;* wings dilute fuscous, paler along the veins; second s. m. receiving first r. n. at least twice as far from base as second from apex; legs black, femora blue behind; beneath the femora have large concave smooth and shining areas for the reception of the tibiæ; scopa black.

Related to *O. tristella* Ckll., but with no white tuft behind the wings, legs partly metallic, and venation different. The less brilliant colors separated from *O. cobaltina* Cresson.

Hab.—Santa Rosa Mountains, California, 7500 ft., June 26 (*F. Grinnell, Jr.*) *O. cobaltina* was taken by Mr. Grinnell on Mt. Wilson, California, June 5, 1909. The male has the same parallel-sided form as the female.

Osmia pogonigera sp. nov.

♀. Superficially like O. *wilmattae,* with which I at first confused it, but readily separable as follows: abdomen narrower and bluer, less closely punctured; wings redder; hair of under side of prothorax white; face with much glistening white hair, though coarse black hairs are intermixed; pleura denuded in type, but with some short white hairs, especially behind; cheeks beneath with some white hair, but also with *long curled black bristles, forming a conspicuous beard.* The last character is absolutely distinctive. Length about 10 mm.; legs black; sides of metathorax with white hair; ventral scopa black; tegulæ partly blue.

Hab.—Strawberry Valley, San Jacinto Mountains, California, 6000 ft., July 17 (*F. Grinnell, Jr.*). *O. wilmattae* Ckll. (A variety with hair on inner side of hind tarsi; dark) was taken by Mr. Grinnell in the San Gabriel Mountains, California, at 3000 ft., June 16, 1909.

Osmia pasadenæ sp. nov.

♂. Length a little over 8 mm., *olive-green*, the mesothorax more bluish-green; head and thorax with abundant long pale hair, which is dorsally pale ochreous, lighter laterally, and white ventrally; no dark hairs on head or thorax; hair of abdomen and legs also all pale, without any black, forming distinct through thin bands on segments 3 to 5; hair on inner side of hind basitarsus pale orange; antennæ black, the *flagellum slender, not at all moniliform;* head and thorax very densely punctured; tegulæ shining black; wings dilute fuscous; second s. m. long and low, receiving first r. n. not twice as far from base as second from apex; legs (except hind coxæ) not metallic; tarsi ordinary, except that *hind basitarsus has a small tooth* as in the subgenus *Ceratosmia* (to which the insect is not otherwise closely allied); abdomen rather narrow; sixth segment somewhat reflexed, and feebly emarginate; seventh bidentate, the teeth rather short and far apart; first ventral segment obtusely triangularly produced at apex; margin of third ventral undulate.

In general appearance similar to *O. inurbana* Cresson, but smaller, with a narrower abdomen, and readily distinguishable by several structural characters above described.

Hab.—Pasadena, California, April 2, 1909 (*F. Grinnell, Jr.*). *O. olivacea* Ckll. also has the tooth on the hind basitarsus, and must be closely allied, but it is easily separated by the black hair on the abdomen, etc.

Also at Pasadena, April 8, 1909, Mr. Grinnell took *O. bennettae* Ckll., new to California.

Description of a New Deltoid Moth.

By John B. Smith, Sc.D.

Renia atrimacula n. sp.

Dull reddish gray tending to mouse-grey. Palpi darker at sides, antennal tuft darker. Primaries with maculation clearly defined, the ordinary spots blackish and contrasting. T. a. line slender, blackish, single, nearly upright, sometimes a little diffuse outwardly. T. p. line consists of a slender blackish line, followed by a more diffuse

yellowish line, a little outward bent over costa, then slightly bisinuate and nearly parallel with outer margin; very even in course. S. t. line very close to t. p. line, pale, irregular, preceded by a blackish shading which darkens most of the s. t. space. A broad, evenly oblique, somewhat diffuse median shade. A series of black interspaceal terminal lunules. Orbicular small, round; a blackish spot without definite outline. Reniform of good size, kidney-shaped, blackish, without definite outline. Secondaries a little paler and less densely scaled than primaries, with a dull, diffuse antemedian darker shading, an oblique dusky extramedian line followed by a yellowish shading, and a sub-marginal pale line preceded by a dusky shading. There is also a broken, blackish terminal line. Beneath whitish, coarsely powdered with brown; all wings with a narrow blackish discal lunule, a narrow brown extra-median line and a broader dark s. t. shade. Expands 1.04—1.10 inches=26—27 mm.

Habitat—Hampton, N. H., VII, 26 (S. A. Shaw); Cohasset, Mass.,VII. 21 (W. T. Bryant); Sussex Co., New Jersey, VIII. 13 (S. T. Kemp).

Two males and one female; one ♂ in good condition, the others passable only. This species is allied to *flavipunctalis* Geyer, and *exserta* Sm., the course of the lines resembling the former most nearly. It differs from both in the conspicuous dark ordinary spots which are also different in shape from those of its allies.

This makes the third species of *Renia* occurring in the eastern U. S., in which the median lines are even, slender and accompanied by a broader pale shading which renders them somewhat conspicuous. Of these, *flavipunctalis* Geyer, is the most common and widely distributed. Both the others are known to me in few examples only; but it is not at all improbable that they are represented in collections under Geyer's name. Judging by my description in Bull. 48, of the U. S. N. Mus., I had something very like this among the material there listed as *flavipunctalis,* and it will require a re-examination of the types of the species now listed as synonyms to make certain that all the names do really refer to one species.

The description is offered at this time, to warrant the insertion of the name into the forthcoming edition of the list of insects found in New Jersey.

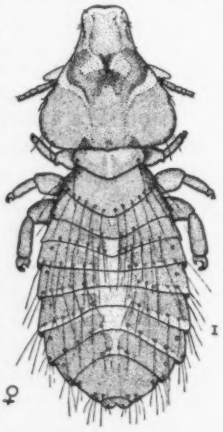
Mallophaga from the Birds of Laysan Island.

By Vernon L. Kellogg and John H. Paine, Stanford University, Cal.

A small lot of Mallophaga collected from maritime birds by Prof. John O. Snyder and Dr. Walter K. Fisher, on the Stanford-Albatross Expedition of 1902, to the Hawaiian and adjacent islands. The specimens were collected immediately after the birds were shot and while the Mallophaga were still alive. In the lot are represented eleven species, one of which being new, is described and figured herewith.

Docophorus snyderi n. sp. (Figs. 1 and 2).

Six specimens from a tern, *Sterna lunata*, (Laysan Isl.). This species greatly resembles *D. melanocephalus*, but may be easily distinguished from it by the rounded but distinct median angle of the posterior margin of the prothorax and by the concave clypeal front.



♀ 1

Female.—Length 1.7 mm., width .64 mm. head, length .6 mm, width .58 mm; clypeus narrower than in *melanocephalus*, concave, transparent in front of signature with a short hair arising near the termination of the colored lateral band and reaching to the margin; another hair arising a little posterior to the anterior angles of the signature and within the signature; two more clypeal hairs at about the middle of the lateral margin, one marginal and the other arising just within the margin; and still another very minute hair in front of the suture; trabeculae narrow, extending to about the middle of the second joint of the antennæ, temporal margins broadly rounded; two hairs, one of which is very short, arising from the eye; three more on the temporal margin, the anterior two being close together, of which two the posterior one is minute. Prothorax with middle of posterior margin strongly though roundly angled; a single long hair arises at the posterior lateral angles. Metathorax with posterior margin nearly parallel to that of the prothorax though the angle is slightly more acute; a row of about sixteen

♂

long hairs on the posterior margin. Abdomen resembles that of *melanocephalus*. The transverse blotches of the first segment meet and those of the fourth segment are shortest; the eighth segment is uniformly colored.

Male.—Length 1.4 mm., width .5 mm.; length of head .54 mm., width .52 mm. Posterior margin of prothorax is angled as in the female. The abdomen is smaller in proportion to the head than in the female.

Nirmus gloriosus Kellogg and Kuwana.

Two specimens, both female, of this handsome species taken from *Sterna lunata*. (Laysan Isl.).

Lipeurus ferox Giebel.

A number of this large *Lipeurus* from several specimens of *Diomedea nigripes* and *Diomedea immutabilis*. (Erben Bank 33 deg. 15 min. N., 132 deg. 30 min. W., and Laysan Isl.).

Lipeurus densus Kellogg.

One female taken from *Diomedea immutabilis*. (Laysan Isl.).

Lipeurus gracilicornis var. **major** Kellogg.

Three females from *Fregata aquila* (Necker Isl.), and one male from *Sterna lunata*. (Laysan Isl.).

Lipeurus confidens Kellogg.

Many specimens from *Diomedea nigripes*. (Erben Bank), and several from *Sterna lunata*. (Laysan Isl.).

Lipeurus concinnus Kellogg and Chapman.

A number of specimens from *Diomedea immutabilis*. (Laysan Isl.).

Lipeurus potens Kellogg and Kuwana.

One male specimen from *Sula piscator*. (Laysan Isl.).

Eurymetopus taurus Nitzsch.

The most abundant species; taken from *Diomedea nigripes*. (Laysan Isl.), and *Dioemdea immutabilis*. (Laysan Isl. and Erben Bank).

Ancistrona gigas Piaget.

One male from *Aestrelata hypoleuca*. (Laysan Isl.).

Menopon invadens Kellogg and Chapman

Several specimens from *Acridotheres tristis*. (Molokai).

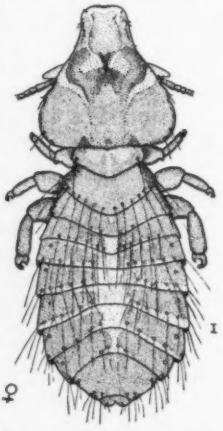
Mallophaga from the Birds of Laysan Island.

By Vernon L. Kellogg and John H. Paine, Stanford University, Cal.

A small lot of Mallophaga collected from maritime birds by Prof. John O. Snyder and Dr. Walter K. Fisher, on the Stanford-Albatross Expedition of 1902, to the Hawaiian and adjacent islands. The specimens were collected immediately after the birds were shot and while the Mallophaga were still alive. In the lot are represented eleven species, one of which being new, is described and figured herewith.

Docophorus snyderi n. sp. (Figs. 1 and 2).

Six specimens from a tern, *Sterna lunata,* (Laysan Isl.). This species greatly resembles *D. melanocephalus,* but may be easily distinguished from it by the rounded but distinct median angle of the posterior margin of the prothorax and by the concave clypeal front.



♀ 1

Female.—Length 1.7 mm., width .64 mm. head, length .6 mm, width .58 mm; clypeus narrower than in *melanocephalus,* concave, transparent in front of signature with a short hair arising near the termination of the colored lateral band and reaching to the margin; another hair arising a little posterior to the anterior angles of the signature and within the signature; two more clypeal hairs at about the middle of the lateral margin, one marginal and the other arising just within the margin; and still another very minute hair in front of the suture; trabeculae narrow, extending to about the middle of the second joint of the antennæ, temporal margins broadly rounded; two hairs, one of which is very short, arising from the eye; three more on the temporal margin, the anterior two being close together, of which two the posterior one is minute. Prothorax with middle of posterior margin strongly though roundly angled; a single long hair arises at the posterior lateral angles. Metathorax with posterior margin nearly parallel to that of the prothorax though the angle is slightly more acute; a row of about sixteen

♂

long hairs on the posterior margin. Abdomen resembles that of *melanocephalus*. The transverse blotches of the first segment meet and those of the fourth segment are shortest; the eighth segment is uniformly colored.

Male.—Length 1.4 mm., width .5 mm.; length of head .54 mm., width .52 mm. Posterior margin of prothorax is angled as in the female. The abdomen is smaller in proportion to the head than in the female.

Nirmus gloriosus Kellogg and Kuwana.

Two specimens, both female, of this handsome species taken from *Sterna lunata*. (Laysan Isl.).

Lipeurus ferox Giebel.

A number of this large *Lipeurus* from several specimens of *Diomedea nigripes* and *Diomedea immutabilis*. (Erben Bank 33 deg. 15 min. N., 132 deg. 30 min. W., and Laysan Isl.).

Lipeurus densus Kellogg.

One female taken from *Diomedea immutabilis*. (Laysan Isl.).

Lipeurus gracilicornis var. **major** Kellogg.

Three females from *Fregata aquila* (Necker Isl.), and one male from *Sterna lunata*. (Laysan Isl.).

Lipeurus confidens Kellogg.

Many specimens from *Diomedea nigripes*. (Erben Bank), and several from *Sterna lunata*. (Laysan Isl.).

Lipeurus concinnus Kellogg and Chapman.

A number of specimens from *Diomedea immutabilis*. (Laysan Isl.).

Lipeurus potens Kellogg and Kuwana.

One male specimen from *Sula piscator*. (Laysan Isl.).

Eurymetopus taurus Nitzsch.

The most abundant species; taken from *Diomedea nigripes*. (Laysan Isl.), and *Dioemdea immutabilis*. (Laysan Isl. and Erben Bank).

Ancistrona gigas Piaget.

One male from *Aestrelata hypoleuca*. (Laysan Isl.).

Menopon invadens Kellogg and Chapman

Several specimens from *Acridotheres tristis*. (Molokai).

A New Species of the Genus Trybliophorus (Orthoptera) from Surinam.

By James A. G. Rehn.

Trybliophorus elegans n. sp.

Type: ♀ ; Surinam, May-September. (Hebard collection). Allied to *T. octomaculata* Serville, from Cayenne, but differing in the larger size and different coloration, while from *T. peruviana* Bruner* it differs in the following particulars†: Slightly smaller, comparatively shorter pronotum with a shorter anterior lobe and more profusely punctate hind lobe, narrower costal field of the tegmina, much slenderer and acuminate valves of the ovipositor, larger and more prominent eyes, less strongly punctured front, paler colored, narrower and more interrupted flavous bands on face, cheeks, sides of pronotum and pleura; more decidedly marked face (yellow) in having the fastigium, upper portion of frontal costa, antennae and upper posterior margins of lateral lobes of pronotum tinged with carmine and in the paler and more strongly serrate hind femora.

Size rather large; form robust; surface generally rugoso-punctate. Head with the occiput arched, distinctly elevated dorsad of the disk of the pronotum, interspace between the eyes hardly more than half the fastigial width; fastigium slightly declivent, produced, longer than broad, apex truncate when viewed from the dorsum, a slightly medio-longitudinal sulcus present, when viewed from the lateral aspect the fastigium is seen to round into the produced dorsal portion of the frontal costa, this produced arcuate portion being distinctly compressed, not sulcate but with a few large punctures near the ocellus, a distinct transverse arcuate depression crosses the face

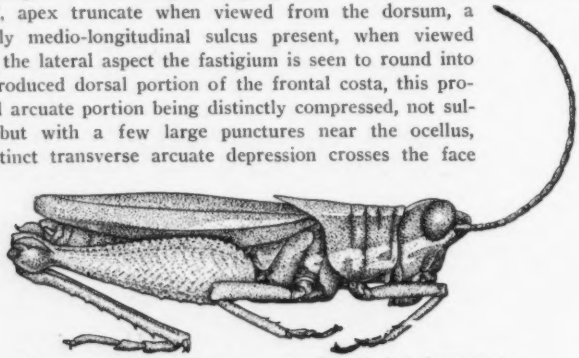


Fig. 1.—*Trybliophorus elegans* n. sp. Lateral view of type (x 2).

* Described on page —.

† Kindly supplied by Prof. Bruner.

ventrad of the ocellus, and ventrad of this line the frontal costa is absent and the face very deeply and irregularly punctate; eyes ovate in shape, quite prominent when viewed from the dorsum, in length almost half again that of the infra-ocular portion of the genæ; antennæ about twice the length of the pronotum, slightly depressed, rather heavy. Pronotum with the greatest dorsal length about one-and-one-half times the greatest dorsal width of the disk; cephalic margin truncate with a very slight and hardly appreciable median emargination, caudal margin produced into an acute-angulate process with a broadly rounded apex; complete transverse sulci three in number, a broken sulcus also present immediately caudad of the cephalic margin, metazona nearly half again as long as the prozona, median and lateral carinæ absent; lateral lobes distinctly longer than deep, cephalic margin slightly sigmoid, ventral margin arcuate with a very slightly cephalic emargination, ventro-caudal angle very broadly rounded; lateral angles of the metazonal disk very slight. Tegmina about twice as long as the greatest length of the pronotum and falling very slightly short of the tips of the caudal femora, coriaceous; costal margin slightly arcuate proximad; sutural margin very slightly arcuate, apex narrowed and evenly rounded; surface punctate with only the principal veins indicated. Wings reaching almost to the tips of the tegmina. Interspace between the mesosternal lobes slightly transverse, the angles slightly rounded; interspace between the metasternal lobes slightly transverse, subcuneiform. Ovipositor jaws each with an accessory shoulder but without distinct sharp teeth on the margins. Cau-

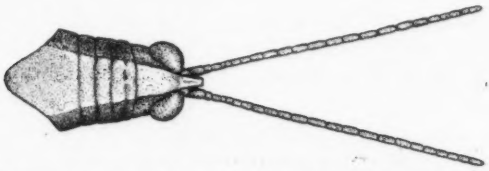


FIG. 2.—*Trybliophorus elegans* n. sp. Dorsal view of head and pronotum of type (x 2).

dal femora considerably inflated, robust, the greatest width contained about three times in the length, scabrous, dorso-median carina serrato-dentate, lateral face with the pattern partially indicated by the distribution of punctures, ventro-lateral carina with a number of dentiform tubercles, ventro-internal carina minutely serrate, geniculiar region inflated, arcuate lobes rectangulate; caudal tibiæ distinctly shorter than the femora, robust, supplied on the lateral margin with seven

spines, one of which is apical, and on the internal margin with seven or eight spines; caudal tarsi slightly over half the length of the tibiæ, second joint slightly longer than the first, third joint about as long as the first and second joint together, large arolium present.

General colors green, redbrown and yellow. Head with the postocular region and the lower part of the genæ vandyke brown, an irregular bar of gamboge yellow extending on each side from the insertion of the antennæ along the ventral border of the eye caudad, an expanding area of olive-yellow extending from a point on the fastigium broading caudad and covering the greater portion of the occiput; fastigium with the front and sides carmine, the olive-yellow median area lined laterad with blackish; face burnt carmine with four small but distinct and regularly placed points of yellow; mandibles blackish, each with a proximal yellow point; eyes hazel; antennæ maroon. Pronotum with the continuation of the light dorsal bar of the head regularly expanding caudad and paris green in color, olive-yellowish along the sides and on the margin cephalad; continuation of the postocular bars subequal with those of the head and of similar color but washed with maroon caudad, the transverse sulci carrying the brown color in narrow lines completely across the green dorsum; ventral half of the lateral lobes red brown with the gamboge yellow cephalic bars continued over them in a broken irregular fashion, the yellow being present only on the cicatrix-like nodes and points. Tegmina with slightly more than the sutural half bice green, costal area bay, darker brown mesad, mingling with the green distad, an intermediate proximal area maize yellow, the principal veins dark brown proximad. Wings smoke brown. Venter very dull olive-green; abdomen dull wax yellow. Cephalic and median limbs very dark brownish glaucons, the tibiæ washed with maroon. Caudal femora wax yellow; caudal tibiæ very dull clay color, darker distad, spines touched with black; tarsi buffy touched with reddish.

MEASUREMENTS.

Length of body	34.5 mm
Length of pronotum	10. mm
Length of tegmen	21.2 mm
Length of caudal femur	18.5 mm

The type is unique.

HIS PRINCIPAL FEATURE.—*Scott*—"See that man who just went by? He landed in this city with bare feet and now he's got a million."

Mott—"Great Jupiter! That beats the centipede to a frazzle."

Three New Hemiptera-Heteroptera from the Miocene of Colorado.

By G. W. Kirkaldy.

The following fossils were among some interesting forms sent to me for examination by Prof. Cockerell. I have described them as well as I found possible, but the more accurate determination of Heteroptera will always, apparently, be difficult, as the characters, upon which modern Hemipterology founds genera and species, are rarely visible in fossils. Two of the following belong to the Cimicidae (or Pentatomidae as some authors persist in misnaming it), and the other to the Reduviidae.

TELEOCORIS gen. nov.

The general form is very much like that of certain Tessaratominae (a sub-family very sparsely represented in America), but the head is much larger than anything I know in it; it seems to come into the tribe Halyini of the Pentatominae, but in the absence of a ventral view, it is not certain. The form of the head, in conjunction with that of the pronotum and scutellum, separates the genus from any known to me.

Elongate oval, the head prominent, longer than its width between the eyes, but it is possible that it is exerted from pressure. The central lobe is very slightly longer than the lateral lobes, and converges gradually to the apex where it is acute; the impressed line dividing them extends down as far as the eyes. The lateral lobes are fairly straight, and not much narrowed towards the apex. The antennae are inserted just apical of the eyes (which are somewhat remote from the base of the head), the first segment not quite reaching the apex of the head. The *pronotum* is slightly more than *three times as wide as the base of the head,* and a little more than twice as wide as its length, the basal margin slightly roundedly emarginate, the lateral margins rounded, more prominent anteriorly than posteriorly, and *distinctly laminate.* The scutellum extends to half the length of the abdomen; it is regularly triangular, the hind angles acute, and not at all rounded. The abdomen is

nearly truncate apically, and the specimen seems to be a ♂. The pronotum is strongly and coarsely punctured, the head and abdomen less so.

T. pothetias sp. nov.

Head testaceous, lateral margins and median lobe, as well as the lateral margins basal of the eyes, mostly black. Pronotum testaceous, strongly punctured and clouded with black; scutellum., etc., black, pleurites partly testaceous. Length, 16 mill.; width across shoulders, 7 mill.

Hab.—Miocene shales of Florissant, Colorado, Station 13 B. (*W. P. Cockerell*).

POLIOCORIS gen. nov.

I should have allied this to *Teleoschistus;* had not Scudder stated that the scutellum does not reach halfway to the apex of the abdomen.

Ovoid: Head longer than wide between the eyes, the lobes about equally long, the head rounded apically; the lateral lobes strongly sinuate laterally, the first segment of the antennae reaching just beyond the apex of the head, the second about four times as long as the first. The pronotum is roundly emarginate apically, subtruncate behind, lateral margins rounded and not prominent, the base about three times as wide as the apical margin. The scutellum reaches halfway to the apex of the abdomen, and is apparently somewhat rounded posteriorly; it is closely punctured (as apparently also the pronotum). Tegmina typically Pentatomine, the membrane with many parallel longitudinal veins. Fore tibiae sulcate, the tarsi bi (? tri) segmentate, the apical segment much the longest and thickest.

P. amnesis sp. nov.

More or less dark, how much so is difficult to say. The antennae are apparently banded. Tegmina pale fuscous. Length, 14½ mill.; breadth, 7 mill.

Hab.—Miocene shales of Florissant, Station 14. (*W. P. Cockerell*).

POLIOSPHAGEUS gen. nov.

This seems to agree fairly well with recent species of *Repipta,* but the antennal proportions are different.

mentate, the apical segment much the longest and thickest. but the antennal proportions are different.

The first segment of the antennae is scarcely longer than the head (though extending well beyond it), and the second segment is much longer than the first. The form of the pronotum is as in *Repipta,* and there is a posterolateral spine (about as large as in *R. gracilis*). The tegmina extend far beyond the apex of the abdomen and have much of the form of those of *Repipta,* but are not so much constricted. The hind legs are very long (as in *R. miniata*). The fore femora are rather stouter in proportion than in any species of *Repipta.* The genus seems thus to differ from *Repipta,* or any of its allies with spined pronotum, by the shorter first segment of the antennae, and the long second segment. It has somewhat the appearance of *Spiniger,* but the first segment of the antennae is much longer, and the legs are different.

P. psychrus sp. nov.

Largely dark; antennae pale fuscous; membrane pale, infuscate basally. Length, 16½ mill.; breadth, 4 mill.

Hab.—Miocene shales of Florissant, Station 13 B. (*W. P. Cockerell*).

VACATION FOR RECREATION AND EDUCATION.—You are familiar with the famous school established years ago by Louis Agassiz on the Island of Penikese. An account of the opening exercises has been perpetuated in the tender, expressive poem, "The Prayer of Agassiz," by John Greenleaf Whittier. The Agassiz Association in honor of that great scientist is, at South Beach, Connecticut, continuing, in name and in spirit, the work begun in his school. The second session will begin June 27th and will include courses for the general public and for children, as well as for technical students. Two daughters and a grandson of Louis Agassiz are among the many members interested in the establishment of this school, and in the other work of The Agassiz Association, and have contributed liberally toward defraying the expenses. President David Starr Jordan, of the Leland Stanford Junior University, California, is one of the trustees of the Agassiz Association and dean of the council. President Jordan was a pupil of Louis Agassiz at the Island of Penikese. The school is established under one very novel condition in that the price of tuition is left for the pupil to decide. The contributions last year ranged from twenty-five cents to one hundred dollars, and the studies that we offered were those easily understood by a kindergartner or by the scientific specialist who came many miles to take special courses. Further particulars may be obtained by addressing The Agassiz Association, Arcadia, Sound Beach, Connecticut.

ENTOMOLOGICAL NEWS.

[The Conductors of ENTOMOLOGICAL NEWS solicit and will thankfully receive items of news likely to interest its readers from any source. The author's name will be given in each case, for the information of cataloguers and bibliographers.]

TO CONTRIBUTORS.—All contributions will be considered and passed upon at our earliest convenience, and, as far as may be, will be published according to date of reception. ENTOMOLOGICAL NEWS has reached a circulation, both in numbers and circumference, as to make it necessary to put "copy" into the hands of the printer, for each number, three weeks before date of issue. This should be remembered in sending special or important matter for a certain issue. Twenty-five "extras," without change in form, will be given free, when they are wanted: a this should be so stated on the MS., along with the number desired. The receipt of all papers will be acknowledged.—ED.

PHILADELPHIA, PA., MARCH, 1910.

"The value of farm products for 1908-9 was according to Secretary Wilson's report estimated at $8,760,000,000 and if insects take a toll of ten per cent. they destroy in value $876,000,000. This does not include crops in storage, forests and forest products which would probably add another $100,000,000 making the total annual tax chargeable to insects $1,076,000,000."

Now that looks like big money.

Entomologists study insects and they doubtless do some good. They collect them and write about them and classify them. On the whole entomologists are of some benefit. Now suppose one of these entomologists wishes to import a few insects for study what happens? He is called upon to pay duty on them and is annoyed in many ways and very likely the insects are ruined and he at last pays the Government thirty cents which, doubtless, aids in repairing this loss due to injurious insects or else prevents foreign species of insects from competing with home industries. If there is any sense in having a duty on insects, imported for study by an individual, and not for sale, we would like to know what it is. Unfortunately little can be done in the matter as the people controlling such affairs have neither the interest nor intelligence to bother about the thing. We have ample evidence to show that this statement is true.

Notes and News.

ENTOMOLOGICAL GLEANINGS FROM ALL QUARTERS OF THE GLOBE.

MR. GEORGE WILLIS KIRKALDY died suddenly in San Francisco, February the second in his thirty-sixth year.

THE Kosmos Natural Science Establishment of Herkimer, New York, has issued an attractive little catalogue of its entomological wares. Mr. Richard Lohrmann is the manager.

CONCERNING SCIENTIFIC AMENITIES & ENTOMOLOGICAL RESEARCH.—The writer welcomed the recent increase in the subscription price of the *News* because, having always believed that he got more than the worth of his money, he saw no reason to suppose that such a condition not would also prevail in the future. It may be true, as a recent contributor intimated, that the *News* is not always scientific. It is certainly nearly always interesting. No reader will object to the occupying of space (for which in the last analysis, he pays), by notes or articles in which, perhaps, he has but a remote interest, or none at all, because he knows that some among the readers of the magazine are interested and helped by those same articles.

In the case of two articles, however, that have recently appeared under the names of Dr. J. B. Smith and Dr. H. G. Dyar,* the writer feels that he expresses the feeling of many, perhaps a majority of the readers of the *News* in saying that they are neither edifying nor helpful and while he would not presume to attempt to instruct either of the gentlemen in the ordinary amenities of scientific intercourse, he feels that he has a right to protest against the occupying of space in the *News* by such matter if only on the ground that it takes up room that might be occupied by something more worth while, and that he is therefore defrauded to a certain degree of the equivalent for his subscription.

Human interest is purely relative and while it may be intensely interesting to Drs. Smith and Dyar to contest as to who saw a mud puddle first, it is assuming a good deal to believe that the rest of the scientific world is equally interested. Seriously, it is the chance afforded by such things as this that give the newspaper paragrapher his opportunity and contribute to the poor opinion which the ordinary Philistine has of the "bug hunter."

If Dr. Dyar holds Dr. Smith in such low esteem that he cannot feel "at present particularly friendly" toward him, it isn't necessary to occupy valuable space in a scientific journal telling the rest of us about

* ENTOMOLOGICAL NEWS, December, 1909, page 425, and January, 1910, page 17.

it. Let them both retire behind the barn and settle the matter in the old approved way; or if that seems unscienific, let them draw lots in the presence of seconds, it being agreed that the loser then expose himself, minus his shirt, for one hour to the attentions of *Culex* (*Mansonia*) *perturbans* beside the "ideal spot" near Dublin, N. H. This would make the punishment fit the crime and revive interest in the "American Duel."—J. F. Abbott, *Washington University, St. Louis.*

A Few Records From Northern Michigan in the Order Odonata.—During the summer of 1903, while doing general Entomological work at Pequaming, Baraga Co., Michigan, I made an effort to collect a representative series of the Odonata of that region. Dr. Philip P. Calvert has been very kind in determining Odonata for me, and it is through his kindness that I am able to publish the following records. All specimens are from about Pequaming, unless otherwise stated.

Lestes unguiculatus. Found among high grasses. July 8 and 9, 3 male, 3 female.

Lestes uncatus. July 26, 2 female.

Nehalennia irene. In fields, July 2, 2 pairs; in Great Marsh, July 6 3 male, 6 female.

Enallagma hageni. Field, July 2, 1 pair; Great Marsh, July 6, 1 female.

Aeschna sitchensis. Woods, July 6, 1 male; July 8, 1 female.

Aeschna clepsydra. Woods, July 6, 1 male; Pequaquawaming Point, July 8, 1 female.

Anax junius. End of Point Abbaye, rocky shore, July 7, 3 male, 2 female.

Somatochlora franklini. Near foot of Point Abbaye, pines on shore, July 8, 1 female.

Cordulia shurtleffi. Field, July 4, 2 male; white pine forest on lake shore, July 6, 4 male, 1 female. Near foot of Point Abbaye, pines on shore, July 5 and 8, 2 male, 1 female.

Dorocordulia libera. Woods on shore, July 14, 1 female; near foot of Point Abbaye, pines on shore, July 8, 1 female.

Libellula quadrimaculata. July 4, 1 female; Great Marsh meadow, July 6, 3 male; along lake shore woods, July 6, 4 female.

Nannothemis bella. Foot of Point Abbaye, pines on shore, July 8, 1 female.

Leucorhinia hudsonica. Woods, July 5, 1 male; July 6, 2 males, 2 female; July 8, 1 female; July 10, 2 male; July 14, 1 male. Near foot of Point Abbaye, July 26, 1 male.

Leucorhinia frigida. Field, July 2, 1 female; woods, July 2, 1 female; July 6, 1 female; Great Marsh meadow, July 6, 7 male, 2 female; July 4, 1 female. Near foot of Point Abbaye, pine woods on lake shore, July 8, 1 male, 6 female.

Libellula pulchella. Field, July 2, 1 female; Great Marsh, July 6, 2 male; along wooded lake shore, July 6, 1 male; End of Point Abbaye on rocky shore, July 7, 1 male.

Leucorhinia glacialis. Great Marsh meadow, July 6, 1 female.

Sympetrum rubicundulm. Brook, July 2, 1 female; woods, July 6, 1 female; July 14, 1 female.

S. rubicundulm Var. *assimilatum.* Brook, July 2, 1 female; field, July 4, 1 female; woods, July 6, 1 female.; Great Marsh, July 6, 1 female; July 10, 1 female.

Sympetrum obtrusum. Brook, July 2, 2 male; marshy ground, July 18, 1 pair.—MORGAN HEBARD.

"THE newspaper reports about my trouble on the occasion of my last arrival from Europe with a lot of insects were amusing, but as Mark Twain said of the report of his death, somewhat exaggerated." Sir George Hampson requested me before I started for Europe last fall to bring over with me the types of some two hundred African Noctuidae which I described a number of years ago and which he was unable to recognize among the material at his command, that he might study and figure the same for his work on The Moths of the World. I did this, and I brought back the bundle containing the boxes with me. My belongings were quickly passed at the custom house with the exception of this package. The inspector assigned to me had his doubts, and compelled me to stand on the dock for a half hour while he went to search for an appraiser. A newspaper reporter of the New York Herald, and another one representing the Sun, happened to spy me and asked me what the trouble was, to which I replied that I was the victim of stupidity, that these customs gentlemen did not know the law which makes natural history specimens, the property of a museum, free from duty. When finally, after waiting thirty minutes and being chaffed somewhat unmercifully by my friends, the appraiser turned up, he simply laughed and told me I was right, there was no duty upon my specimens, and that ended the matter, though I and six people who were waiting to accompany me to the hotel lost an hour each out of our time. It was one of those annoying little incidents which sometimes occur, but I do not think I said "damn" as the Sun reporter intimated that I looked as if I would like to say. I think it is simply outrageous that the gentlemen who are in charge of the affairs of the United States government should impose a duty upon the few natural history specimens which individuals import for the purposes of scientific study and research. The thing is to the last degree petty. It is unjust to scholarship. It is putting a burden upon scientific research when carried on by individuals."—DR. W. J. HOLLAND, IN A LETTER TO THE EDITOR.

Entomological Literature.

COMPILED BY E. T. CRESSON, JR., AND J. A. G. REHN.

Under the above head it is intended to note papers received at the Academy of Natural Sciences, of Philadelphia, pertaining to the Entomology of the Americas (North and South), excluding Arachnida and Myriapoda. Articles irrelevant to American entomology, unless treating of new genera, will not be noted; but contributions to anatomy, physiology and embryology of insects, however, whether relating to American or exotic species, will be recorded. The numbers in **Heavy-Faced Type** refer to the journals, as numbered in the following list, in which the papers are published, and are all dated the current year unless otherwise noted. This (°) following a record, denotes that the paper in question contains description of a new genus; while this (*), that of a new North American form.

For complete record of Economic Literature, see the Experiment Station Record, Office of Experiment Stations, Washington.

3—The American Naturalist. **4**—The Canadian Entomologist. **7**—U. S. Department of Agriculture, Bureau of Entomology. **9**—The Entomologist, London. **10**—Nature, London. **11**—Annals and Magazine of Natural History, London. **16**—Bulletin, Societe Nationale d'Acclimation de France, Paris. **20**—Bulletin, Academie Imperilae des Sciences de St. Petersburg. **22**—Zoologischer Anzeiger, Leipzig. **32**—Bulletin, Museum d'Histoire Naturelle, Paris. **37**—Le Naturaliste Canadien, Quebec. **38**—Wiener Entomologische Zeitung. **45**—Deutsche Entomologische Zeitschrift. **50**—Proceedings, U. S. National Museum. **51**—Novitates Zoologicae, Tring, England. **62**—Handlinger, Konglige Svensk Vetenskaps-Akademiens, Stockholm. **67**—Entomologiske Tidskrift, Stockholm. **81**—Biologisches Centralblatt, Erlangen. **85**—Bulletin, Societe des Sciences Naturelles de l'Ouest de la France, Nantes. **96**—Bulletin, Trimestriel, Societe d'Histoire Naturalles de Macon, France. **173**—Die Grossschmetterlinge der Erde, von A. Seitz, Stuttgart. **193**—Entomologische Blatter, Nurnberg. **194**—Genera Insectorum. **195**—Bulletin, Museum of Comparative Zoology at Harvard College, Cambridge, Mass. **196**—Arkiv for Zoologie, Stockholm. **197**—Proceedings, Royal Society, Biological Sciences, Series B., London. **198**—Biological Bulletin, Marine Biological Laboratory, Woods Hole, Mass. **199**—Bulletin, Societe Scientifique et Medicale de l'Ouest, Rennes. **200**—Bulletin, Scientifique de la France et de la Belgique, Paris. **201**—Memoires, Societe Entomologique de Belgique. **202**—Annales de Paleontologie, Paris. **203**—Bulletin, Societe des Sciences de Bucarest-Roumanie. **204**—New York State Museum Bulletin. **205**—Kansas State Agricultural College, Experiment Station.

GENERAL SUBJECT. **Anon**—Anteckningar rorande verksam-

heten vid Centralanstaltens for jordbruksforsok entomologiska afdelning, 1908, **67,** xxx, 193, 1909. **Anon**—The local collection of insects, **172,** x, 19. **Banks, N.**—A list of works on No. American Entomology, **7,** Bulletin, No. 81. **Brues, C. T.**—The insect pests of museums, Proc. American Association of Museums, iii, 33, 1909. **Felt, E. P.**—Control of household insects, **204,** No. 129, 1909. Twenty-fourth report of the State Entomologist on injurious and other insects of the state of New York, **204,** No. 134, 1909. **Kirkaldy, G. W.**—On some preoccupied generic names in insects, **4,** xlii, 8. **Meunier, F.**—Nouvelles recherches sur les insectes du Terrain Houiller de Commentry (Allier), **202,** iv, 125. **Newell, W.** (et al.)—Third biennial report (1908-09) of the secretary, State Crop Pest Commission of Louisiana (containing papers pertaining mostly to the control of cotton pests), 1909, Baton Rouge, La. **Tullgren & Dahl**—Forsok med Karbolineum och andra insektdodande medel, **67,** xxx, 96, 1909.

APTERA. Holmgren, N.—Termitenstudien 1, Anatomische untersuchungen, **62,** xliv, No. 3, 1909. **Mjoberg, E.**—Studien ueber Pediculiden und mallophagen, **22,** xxxv, 287, (°). **Silvestri, F.**—Die fauna sudwest-Australiens, Isoptera, ii, 279, 1909.

NEUROPTERA. Comes, D. S.—Sui movimenti di maneggio e sul loro significato, nella teoria segmentale, **81,** xxx, 81. **Holmgren, N.**—Das system der Zermiten, **22,** xxxv, 284. **Mjoberg, E.**—Svensk insektfauna, Neuroptera, Planipennia (Illustrations and tables), **67,** xxx, 131, 1909. **Needham, J. G.**—A peculiar new may fly from Sacandaga Park (New York), **204,** No. 134, 71, 1909 (*).

ORTHOPTERA. Griffini, A.—Revision des types de certaines Gryllacris decrites par F. Walker, existant au Musee d'Oxford, **45,** 1910, 82. **Jordan, K.**—Description of a new kind of apterous earwig, apparently parasitic on a bat, **51,** xvi, 313, 1909 (°). **Jordan, K.**—Notes on the Anatomy of Hemimerus talpoides, **51,** xvi, 327, 1909.

HEMIPTERA. De La Tarre Bueno, J. R.—Some records of Heteroptera, **4,** xlii, 29. **Distant, W. L.**—Descriptions of Oriental Capsidae, **11,** v, 10 (°). **Horvath, G.**—Description of a new bat-bug from Br. Columbia, **8,** xlvi, 12 (*). **Kirkaldy, G. W.**—Catalogue of the Hemiptera (Heteroptera) Vol. 1, Cimicidae, 1909. **Kirkaldy, G. W.**—Hemiptera new and old, No. 3, **4,** xlii, 63. **Montando, A. L.**—Hydrocorises de l' Amerique du Nord. Notes et descriptions d'especes nouvelles, **203,** xviii, 180, 1909 (*). **Nasonov, N. V.**—Sur les transformations de Kermes quercus. (In Russian), **20,** 1910, 47. **Nusslin, O.**—Zur biologie der gattung Chermes, **81,** xxx, 16, 64. **Parker, J. B.**—Chinch Bug, **205,** Circular No. 5. **Stevens, N. M.**—A note on reduction in the maturation of male

eggs in Aphis, **198,** xviii, 72. **Tullgren, A.**—Aphidologische studien, **196,** v, 14.

LEPIDOPTERA. Andre, E.—Elevage des Vers a soie suavages (completed), **96,** iii, 185, 1909. **Chagnon, G.**—Erebus odoratus ou odora, **37,** xxxvi, 181, 1909. **Cockerell, T. D. A.**—A syntomid moth imported with bananas, **4,** xlii, 60 (*). **Deegener, Dr.**—Konnen die schmetterlinge hören? **191,** heft. 7, lll. **La Baume, W.**—Ueber den zusammenhang primarer und sekundarer geschlechtsmerkmale bei den Schmetterlingen und den ubrigen gliedertieren, **81,** xxx, 72. **McCracken, I.**—The manifestation of the flight-function in the silk worm (Bombryx mori), **198,** xviii, 121. **Peyron, J.**—Zur morphologie der Skandinavischen schmetterlingseier, **62,** xliv, No. 1, 1909. **Rebel, H.**—Neue palaearktische Pyraliden Zortriciden und Tineen, **190,** xxiii, 1 (°). **Swett, L. W.**—Geometrid notes—a new variety, **4,** xlii, 68 (*). **Taylor, G. W.**—Descriptions of three new species of Eupithecial from Western America, **4,** xlii, 57 (*). **Taylor, G. W.**—Stray notes on Geometridae, No. 1. On Plagodes keutzingaria, **4,** xlii, 38. **Warren, W.**—Opigena, Hermonassa; Amphitrota, **173,** I, Fauna palaeartica, Pt. 56, 1909.

DIPTERA. Cockerell, T. D. A.—A new Dipterous parasite of bats, **4,** xlii, 59 (*). **Coquillett, D. W.**—New species of No. American Diptera, **4,** xlii, 41 (*). **Graenicher, S.**—Some new and rare Diptera from Wisconsin, **4,** xlii, 26 (*). **Johannsen, O. K.**—Family Myceteophilidae, **194,** fasc. 93, 1909. **Stein, P.**—Zur kenntnis der gattung Fucellia R D, **38,** xxix, 11. **Trotter, A.**—Marcellia Revista, internazionale di Cecidologia vii, fasc. iv, v, 1909. **Wahlgren, E.**—Svensk insektfauna. Diptera. Cyclorapha Syrphidae. (Tables and illustrations), **67,** xxx, neft 1-2, 1909.

COLEOPTERA. Bowditch, F. C.—Further notes on Pachybrachys, **4,** xlii, 53 (*). **C, G. H.**—A study of bark-beetles, **10,** lxxxii, 378. **Criddle, N.**—Habits of some Manitoba tiger beetles (Cicindelidae) No. 2, **4,** xlii, 9. **Eichelbaum, F.**—Katalog der Staphliniden-gattungen nebst angabe ihrer literatur, synonyme, artenzahl . . . . , **201,** xvi, 71, 1909. **Fall, H. C.**—New Silphidae of the tribe Anisolomini, **4,** xlii, 4 (*). **Gahan, C. J.**—Notes on Cleridae and descriptions of some new genera and species, **11,** v, 55. **Grouvelle, M. A.**—Description d'un Lathrididae mexicain nouveau, **32,** 1909, 245. **Hagedorn, M.**—Diagnosen bisher unbeschriebener Borkenkafer, **45,** 1910, 1. **Houlbert et Monnot**—Faune entomologique armoricaine Coleopteres, Carnivora, Carabides (continued), **199,** xviii, 243, 1909. **Jordan, H.**—Ueber "extraintestinale" verdauung im allgemeinen und bei Carabus auratus im besonderen, **81,** xxx, 85. **Kleine, R.**—Die Lariiden und Rhynchophoren und ihre nahrungspflanzen, **193,** vi, 4. **Lameere, A.**—Revision des Prionides.

Treizieme memoire: Derancistrines, **201,** xvi, 1909. **Lea, A. M.**—Die fauna sudwest-Australiens, Curculionidae, ii, 215, 1909. **Luderwaldt, H.**—Actinobolus trilobus n. sp., **45,** 1910, 95. **Mason, F. R.**—Collecting beetles in Mexico, **4,** xlii, 22. **Mjoberg, E.**—Om Pissodes validirostris Gyll. en i. Svenrige hittillo obeaktad skadeinskt pa tall janite en ofversikt af ofriga skadliga arter af samma slakte, **67,** xxx, 243, 1909. **Pasquet, O.**—Varieties de Cicindela germanica, trouvees dans la manche sur les bords du couesnon et de la selune, **199,** xviii, 61, 1909. **Peneau, J.**—Coleopteres de la Loire-Inferieure, **85,** ix, 73, 1909. **Pic, M.**—Coleopteres de la famille des Anthicides recueillis par Germain en Bolivie, **32,** 1909, 253. **Pic, M.**—Diagnoses d'un Coleoptere Hylophilus et de cino Coleopteres Anthicides exotiques, **32,** 1909, 250. **Reitter, E.**—Eine neue gattung der Coleopteren-familie der Tenebrionidae. Zugleicht ein vertreter einer neuen tribus bei den Lachnogüni, **193,** vi, 20 (°). **Rungius, H.**—Ueber eine bsonderheit des larven-darmes von Dytiscus marginalis, **22,** xxxv, 341. **Sanders, G. F.**—Notes on the habits of Disogmus pubescens, **4,** xlii, 48. **Spaeth, F.**—Neue arten der gattung Hemisphaerota, **45,** 1910, 55. **Swaine, J. M.**—Catalogue of the described Scolytidae of America, north of Mexico, **204,** No. 134, 76, 1909. **Swaine, J. M.**—A new species of Eccoptogaster, **4,** xlii, 30 (*). **Tremoleras, J.**—Coleopterologische skizze von Uruguay, **193,** vi, 22. **Von Schonfeldt, H.**—Coleopterorum catalogus. Pars 7: Brenthidae. **Wellman, F. C.**—On the synonymy of the Meloidae, **45,** 1910, 22.

HYMENOPTERA. Adlerz, G.—Nya iakttageker ofver Ammophila (Micsus) campestris, **67,** xxx, 163, 1909. **Bachmetjew, P.**—Die statistisch-analytische methode im Dienste der Bienankunde, **45,** 1910, 15. **Brues, C. T.**—The parasitic Hymenoptera of the tertiary of Florissant, Colo, **195,** liv. 1 (*). **Cameron, P.**—On some Asiatic species of the Braconed sub-families Rhogadinae, Agathinae and Microgasterinae and of the Alysiidae, **38,** xxix, 1, (°). **Clement, M.**—Fecondation des Meres-Abeilles en captive (note), **16,** lvi, 478, 1909. **Cockerell, T. D. A.**—Some bees of the genus Augochlora from the West Indies, **50,** xxxvii, 489. **Cockerell, T. D. A.**—Descriptions and records of bees, **11,** v, 22 (*). **Cockerell, T. D. A.**—The bee fauna of Calgary, Alberta, **4,** xlii, 25. **Cockerell, T. D. A.**—The fossil Crabronidae, **9,** xliii, 60 (*). **Doncaster, L.**—Gametogenesis of the gall-fly (Neuroterus lenticularis), **197,** lxxxii, 88. **Friese, H.**—Einige neue Tetrapedia-arten, **45,** 1910, 62. **Howard, L. O.**—Parasites reared or supposed to have been reared from the eggs of the gipsy moth, **7,** Tech. Ser. No. 19, Pt. 1. **Meade-Waldo, G.**—New species of Diploptera in the collection of the Br. Museum, **11,** v, 30 (°). **Morley, C.**—On the hymenop-

terous parasites of Coccidae (cont.), **9**, xliii, 27. **Rabaud, E.**—Notes critiques sur les moeurs des pompiles, **200**, xliii, 171, 1909. **Rohwer, S. A.**—Notes on Tenthredinoidea with descriptions of new species. Paper viii. New species from California, **4**, xlii, 49 (*). **Shull, A. F.**—Do parthenogenetic eggs of Hymenoptera produce only males?, **3**, xliv, 127. **Sanders, G. E.**—A new Proctotrypid in the family Scelioninae, **4**, xlii, 15 (*).

REVIEWS.

KIRKALDY'S CATALOGUE OF THE HEMIPTERA. An appreciation with digressions.*

The appearance of volume I of Mr. Kirkaldy's Catalogue of the Hemiptera of the world marks an epoch in the study of this group of insects, not alone on account of the quantitative enumeration of the described forms but even more for the foundation it gives us for an up-to-date classification of our Hemiptera. I have ventured to criticise a few features of this catalogue, but I do so not to find fault with a work which is of the highest quality, but as a conservative in matters nomenclatural, I believe a catalogue of this kind should not represent the extreme views of a radical. However, this is but my private opinion and I am well aware that most of our students may prefer the sweeping changes here proposed.

Of greatest interest are the forty pages of introductory matter beginning with a complete but succinct statement of the rules of nomenclature followed by the author. If we cannot agree with all his conclusions we must admit that he has led us a long way toward a stable nomenclature in this order. Following this is a discussion of the classification adopted, a partial Bibliography, an incomplete list of abbreviations and an appendix giving the author's reason for the selection he has made of types for many of the genera, an item of much importance.

The catalogue proper occupies 361 pages and embraces the family Cimicidæ (Pentatomidæ) only. It covers the same ground as volume I of the Lethierry and Severin Catalogue, except that the Thyreocoridæ (Cydnidæ) and Urolabididæ are relegated to the second volume, an unfortunate, although doubtless necessary procedure. Following this catalogue are 23 pages of additions and corrections bringing the list down to the end of 1907, and including most names published in 1908 and 1909. At the end is an index to genera, the specific index being held for the second volume.

* Catalogue of the Hemiptera (Heteroptera) with biological and anatomical references, lists of food plants and parasites, etc. Prefaced by a discussion on nomenclature and an analytical table of Families. By G. W. Kirkaldy. Volume I, Cimicidæ. Berlin, Felix L. Dames, 1909.

On looking over this catalogue one is impressed by the remarkable industry, and by the accuracy as well, of the author, but it is a question if he does not lean too much toward the purely bibliographical side of his work. This is especially noticeable in his selection of geno-types, where, for instance, he practically make Fabricius redescribe his own genus *Acanthia* as *Salda*. We must bear in mind that the earlier entomologists fixed no types for their genera. That was a later invention which came with the multiplicity of generic names, and we have no right to so fix the types of these earlier genera as to change their meaning. Fabricius founded *Acanthia* for the *Cimex lectularius* of Linneus and the name must fall as a synonym of *Cimex*. When he founded *Salda* in 1803 he was simply separating out a group of species from his old genus *Acanthia* which he recognized as generically distinct from *lectularius*. In the same way I must disagree with our author in his use of the name *Cimex*. This was the ancient classical name of the bed bug which Linneus certainly considered representative of his genus and Fabricius had no more right to apply this generic name to *bidens* and its allies than had Latreille to fix *zosterae* as the type of *Acanthia*. We have had no more able student of the Hemiptera than Stal, and he in his mature work uses the name *Cimex* for *lectularius*.

There is one course adopted by my friend Kirkaldy against which I wish to record my strongest protest. He says on page xiv that the names of families, tribes, etc., should be formed from the root of the "oldest generic name in the respective group." This is contrary to the rules of zoological nomenclature now almost universally adopted, and is also contrary to the rule of priority for which our talented author is elsewhere so strong an advocate. The family and tribal names should be formed from the "type genus" which I take to mean the genus considered most characteristic by the founder of the family. For instance, the family name *Capsidae* has priority over *Miridae* and is founded on a more typical genus and there is no valid reason why it should be replaced by the later name. Our author claims that by following this plan "we would have a family *Lygaeidae* which did not contain a genus *Lygaeus*", which is incorrect as Art. 5, of the Code provides that "the name of a family or sub-family is to be changed when the name of its type genus is changed."

In the matter of the emendation of generic names Mr. Kirkaldy has, I think, taken the right stand, but perhaps he has carried it too far when elsewhere he adopts the form *Cyrtoisa* for *Cyrtosia*, when the former was obviously a typographical error. This is taking the responsibility out of the hands of the author and placing it on the typesetter and to be consistent, we should use the name of such typesetter or of the proofreader as authority for the name rather than that of the author.

I wish also here to enter a protest against allowing a name given to the immature form of an insect to replace a later one founded on the adult. If we find an egg or larva new to us we should endeavor to raise it to maturity and learn to what species it belongs. If we have not the ambition or industry to do this we have no right to claim the species. We cannot but admire the strong stand our author has taken on the subject of priority and in the recognition of specific names except as noted above this rule probably cannot be too rigidly applied, but when we come to genera the personal element comes so prominently to the front in the selection of geno-types that it probably is hopeless to look for unanimity. There will be many cases which could well be submitted to an unbiased authoritative commission who could undertake to decide each controverted case upon its merits.

I do not feel competent to discuss the system of classification adopted by Mr. Kirkaldy which differs radically from that of the Lethierry and Severin Catalogue. It is founded on the Schödtean system and is probably the most philosophical thus far proposed. I would, however, like to suggest a few slight changes in the arrangements of the families and in doing this I have restored certain names which I think he has unwarrantably altered. Assuming his phylogeny to be substantially correct, I would list the families as follows:

1. Cydnidæ (Thyreocoridæ).
2. Pentatomidæ (Cimicidæ).
3. Urolabididæ.
4. Aradidæ.
5. Coreidæ.
6. Pyrrhocoridæ.
7. Lygæidæ. (Myodochidæ).
8. Tingidæ.
9. Nabidæ.
10. Gerridæ.
11. Reduviidæ.
12. Phymatidæ (Macrocephalidæ).
13. Enicocephalidæ.
14. Nepidæ.
15. Anthocoridæ.
16. Cimicidæ (Clinocoridæ).
17. Polyctenidæ.
18. Aëpophilidæ.
19. Capsidæ (Miridæ).
20. Dipsocoridæ.
21. Saldidæ (Acanthiidæ).
22. Octeridæ.
23. Naucoridæ.
24. Belostomidæ.
25. Corixidæ.
26. Notonectidæ.

It seems to me that the representation of the relationship between various groups of insects of the same category by a phylogenetic tree, printed in two dimensions of space only, on the page of a book is but litlte more satisfactory than the linear arrangement of a catalogue. A phylogenetic tree to be at all true to nature must be in three dimensions, and in my opinion, many, if not most of its branches, must anastamose at various points with the adjacent branches. This will sound to some like ignoring the principles of evolutionary development, but I do not see how we can escape from this view if we study

the more recent and plastic generic groups where each genus will be found to connect with related genera through intermediate species which may not necessarily have reverted to their parent stock but which do combine the characters of both genera and are characteristic of neither. One student will place such a species in one genus while the next will locate it in another and both may be equally correect. These transition species serve to show us how artificial our generic groups are, and must be if we wish them to be of the greatest service in the classification of our insects.

But to return to the catalogue before us. The enumeration of the genera and species we find to be remarkably complete and accurate and shows a marvelous industry on the part of the author. I have not been over it for omissions or errors and incidentally have noticed but one or two. On page 187 my *Platycoris scutellatus* is listed as a synonym of *Poecilotoma grandicornis,* whereas it is a distinct but closely allied species of that genus, and my *Dictyotus (?) pallidus* (page 43) belongs to Bergroth's recent genus *Eurynannus* (page 204). Under each genus the species are arranged in alphabetical order, a purely artificial method which has its disadvantages but the use of sub-genera and sectional divisions in a measure compensate for this. Under the specific name the full binomial used by the author is given which will be a great convenience to the student. Another very useful feature is the naming of the types for each genus and sub-genus. On the other hand, our author has used "l. c." much too freely for ready reference, and each generic and specific name should have been followed by its authority. We also note that he has given us no table for distinguishing the superfamilies enumerated on page xxi. We are grateful to Mr. Kirkaldy for this first volume of his great catalogue and will look anxiously for the appearance of the later volumes.

Since sending this review to the printer I have learned with deep regret of the untimely death of my friend G. W. Kirkaldy. We have faint hope that someone may be found who can take up the bibliographical work he so ably inaugurated and give us an authoritative catalogue of the Hemiptera of the world.

E. P. Van Duzee.

Ant Communities and How They are Governed—A study in Natural Civics. By Henry Christopher McCook, author of "Nature's Craftsmen," "Tenants of an Old Farm," etc., etc. Illustrated from nature. Harper & Brothers, Publishers, New York and London, 1909.

This is a book of 321 pages and is illustrated by 97 figures. The kind of entomology that is here set forth appeals to everyone as it re-

lates in charming style the wonderful communal life of these very interesting insects. It is natural history divested of all dryness, and yet truly scientific. We also look upon it as a comparative study in civics and firmly believe that important facts have been gleaned that have and will be of benefit to that higher animal—man. We believe that this book should be in the hands of youth as well as those of mature years, as it can't fail to fascinate, instruct and interest all. Entomologists will find it a story told in delightful literary style, and it may induce some to take up similar studies. The last chapter, "A Note in Review", will call forth much thought and reflection, and if our human communities were made up of men like the author of this work how much "law" would we need? Would we not have the ideal community he mentions? The author has been a student of such problems since 1874, when he communicated his first paper to the Trans. Am. Ent. Soc., and during an active and exacting career in the ministry has found time to write twenty-four books and memoirs. He has been honored for his valuable work, having been President of the American Entomological Society, Vice-President of the Academy of Natural Sciences, of Philadelphia, Professor of Entomology in the Pennsylvania Horticultural Society, and in addition to D.D., has received the honorary degrees of Sc.D. and LL.D. We hope to see other interesting works from his facile pen.—H. S.

Doings of Societies.

At a regular meeting of the Feldman Collecting Social, held December 15, 1909, at 1523 South Thirteenth street, Philadelphia, twelve members were present. Mr. W. Beutenmuller, of New York, visitor. President Harbeck in the chair. Minutes of previous meeting read and approved.

Mr. Beutenmuller described "the collection of insects found within a radius of fifty miles of New York" in the American Museum, recently entrusted to the care of the New York Entomological Society.

Mr. Daecke exhibited specimens of *Bruchus bivulneratus* Horn, collected by Mr. A. B. Champlain at Enola, near Harrisburg, Pa., on blossoms of False Solomon's Seal (*Vagnera racemosa* Linn), VI. 12, '09, and stated that Mr. W. S. Fisher had collected this *Bruchus* on blossoms of Swamp Milkweed (*Asclepias incarnata* Linn). VII, 7, '08, at Highspire, Pa., in the evening just before dark. Other members of the social said

that they had always taken this species on a species of *Cassia*. Mr. Daecke also exhibited a very unusual staphylinid; *Trigonodesmus striatus* LeC. It was collected by Mr. W. S. Fisher under driftwood October 14 on the Susquehanna River, at Harrisburg, Pa.

Prof. Smith exhibited strawberry weevils (*Anthonomus signatus* Say) showing color variations, saying the species is injurious to the strawberries in southern New Jersey, but thinks this is not its natural food plant but only attacks it because it is the earliest plant to blossom. It also attacks blackberry and dewberry blossoms. Said that many specimens bred were found to contain a hymenopterous parasite.

Dr. Skinner said he had been questioned as to whether there were any Lepidopterous parasites and believed there was an Australian moth whose larva was parasitic on the roach but could find no reference, but found where larvae of some Epipyropidae were parasitic on Homoptera. Also mentioned a Coleopterous (?) larva supposed to have been blown from the nose of a consumptive person which led to a discussion of articles published by doctors which show a great lack of learning on their part about Entomology.

Mr. Huntington exhibited a small bottle of evaporated milk which contained a very much alive specimen of *Dermestes elongatus* LeC.

Mr. C. T. Greene exhibited the following interesting Diptera: *Platypeza taeniata* Snow, Clementon X. 3, '09; *Eupeitenus ater* Macq., Riverton IV, 9, '05; *Asilus manceі* Hine, Malaga VIII. 4, 07, coll. by Geo. M. Greene; *Hyetodesia pallidula* Cog., Iona V. 16, '09, and *H. varipes* Coq., Iona IX. 12, '09.

Dr. Skinner mentioned a species of *Colydium* which had bred from a board on which was wrapped expensive cloth and eaten its way through the whole bolt, leaving many holes when the cloth was unwrapped.

Mr. Wenzel said the Canadian trip had turned out better than at first supposed and he was working out the material as the authorities up there were going to publish a list and has

identified over 200 species and believes that he will have over 300. Said that they had collected many species which were recorded by Hubbard and Schwarz in their paper on Marquette, Mich., and Lake Superior District. Specially mentioned a species of *Amara* which is represented in the Horn collection by a specimen from Mass. and Europe, also *Cymindis unicolor* Kirby and six species of *Magdalis*. Also recorded *Metachroma lurida* Oliv. from DaCosta, N. J., VII. 4, '09, about fifteen specimens taken on Scrub Oak.

Dr. Skinner said that on January 6th the Brooklyn Entomological Society are to give a testimonial to Mr. Roberts and the Philadelphia entomologists are invited to attend.

GEO. M. GREENE, *Secretary*.

At a regular meeting of the Feldman Collecting Social held November 17, 1909, at 1523 S. 13th Street, Philadelphia, Pa., fourteen members were present. President Harbeck in the chair.

Prof. Smith exhibited two larvae of *Datana ministra* Dru., the heads and last abdominal segment of which were covered with eggs of a Dipteron, *Winthemia IV-pustulata* Fabr. Said he had noticed flies buzzing around a group of these larvae and upon looking closer discovered that the flies were all females and were depositing their eggs. Described the manner of doing this and mentioned how uneasy the larvae seemed as soon as a fly approached.

Mr. Wenzel exhibited some of his Canadian material recently collected by himself and H. A. Wenzel and gave some details of the trip.

Prof. Smith said the New Jersey List would soon be published and contains about 10,500 species, a gain of about 2,000 over the latest.

Mr. Laurent exhibited specimens of *Apion griseum* Smith taken from pods of a species of *Phaseolus* at Anglesea, N. J., XI. 14. Collected about 200 specimens, getting 22 from one pod.

GEO. M. GREENE, *Secretary*.

EXCHANGES.

Not Exceeding Three Lines Free to Subscribers.

☞ These notices are continued as long as our limited space will allow; the new ones are added at the end of the column, and only when necessary those at the top (being longest in) are discontinued.

Cocoons—*S. cynthia* to exchange for *S. cecropia*, *C. promethia*, *T. polyphemus* and other pupae or Lepidoptera in papers.—John H. West, 2229 N. Mascher St., Phila., Pa.

Wanted for cash or exchange, 2 female and 2 male *Arg. diana;* must be in perfect condition to be acceptable. I have many specimens in papers to exchange.—G. H. Hosenfelt, 3673 S. Broadway, St. Louis, Mo.

Saturnidae—Have always for exchange ova, cocoons or set imagines of Japan, Africa, Ceylon, India and Malayan Saturnidae as *Attacus edwardsi*, *Actias selene*, *Caligula japonica*, *simla* and a new species of *Cricula*. Wanted live cocoons or ova Central American and Mexican *Attacus*, also *luna*, *colombia*, *calleta* and *shastaensis*. Old correspondents invited to write.—J. Henry Watson, 70 Ashford Road, Withington, Manchester, England.

I have for exchange eggs of *Catocala cara*, *vidua*, *piatrix*, *scintillans* and, on pins, imagoes of *illecta*, *innubens*, *robinsoni*, *vidua* and others. Wish imagoes of *Marmorata viduata*, *junctura*, etc.—R. R. Rowley, Louisiana, Mo.

Dytiscidae wanted by exchange or purchase Henshaw's numbers 1236, 1239, 1241, 1260, 1271, 1272, 1307, 1311, 1336, 1337, 1341, 1351, 1363, 1373, 1376, 1398, 1407, 1416, 1429, 1450, 1453, 1456, 1070, 1471, 1500, 1503, 1504.—John D. Sherman, Jr., 335A, Decatur St., Brooklyn, N. Y.

Offered—Fine *Parn. apollo*, *delius*, *mnemosyne*, *Arg. paphia*, *A. aglaia*, *lathonia*, *Lyc. coridon*, *semiargus* and other butterflies. Wanted pupae of Papilios *S. geminatus*, *astylus*, *excaecatus*, *cerisyi*, *myops*, cocoons of *gloveri*, etc.—J. W. H. Harrison, 181 Abingdon Road, Middlesbro, England.

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Exchange—Living pupae of *M. modesta*, *Sph. chersis*, *A. bicolor*, *Pap. cresphontes*, *Pap. asterias* for native or exotic Lepidoptera.—A. Mares, 2517 Homan Ave., Chicago, Ill.

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Lepidoptera—Pupae of *cresphontes* and *troilus* to exchange.—F. Malkmus, 3735 Cottage Ave., St. Louis, Mo.

Lepidoptera—I have for exchange first-class *Catocala epione*, *lacrymosa*, *paulina*, *evelina*, *retecta*, *luctuosa*, *flebilis*, *robinsonii*, *curvata*, *obscura*, *residua*, *insolabilis*, *angusi*, *lucetta*, *ultronia*, *innubens*, *hinda*, *scintillans*, *nebulosa*, *palaeogama*, *anida*, *phalanga*, *habilis*, *basilis*, *cerogama*, *parta* ahd others. Wish *agrippina*, *subviridis*, *californica*, *frenchii*, *portia*, *aspasia*, *rosalinda*, *mariana*, *faustina* and *aholibah*.—Ernst Schwarz, 6310 Newstead Ave., St. Louis, Missouri.

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Papiliaj kokonoj, interŝanĝe. Mi deziras ricevi interŝanĝe, du specimenojn de la skarabo (*Prionus giganteus*) por kvina specoj de la pli grandaj papiliaj kokonoj de Norda Ameriko.—Howard Austin Snyder, Hermit Lane, Roxborough, Philadelphia.

Catocalae—Wanted for exchange or, preferably, cash, *sappho*, *marmorata* and southern and western species. Must be in fine condition.—Dr. Hermann Bosch, 25 East 65th St., New York.

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